ENDOCRINE AND METABOLIC DISEASES

[Abstract:0002]

# HYPERTENSIVE EMERGENCY AS A CLINICAL PRESENTATION OF PHEOCHROMACYTOMA

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**Background:** Catecholamine-secreting tumours are rare, with an estimated annual incidence of 0.8 in 100,000 people. They may be incidental diagnoses or findings in the context of surveillance of familial syndromes. The symptoms are present in 50% of patients and are typically paroxysmal. The classic triad includes episodic headache, hyper sweating and tachycardia.

**Case Presentation:** 44-year-old, with no relevant pathological history. She resorted to the emergency department (ED) due to constant frontal headache, nausea, and blurred vision. She reported episodes of hyper sweating associated with tachycardia, lasting 20 minutes in the last 2 months. Other symptoms were denied.

**Physical Examination:** Conscious, collaborative and oriented. Flushed, hydrated. Sudoretics. Apyretics. Eupneic. Her blood pressure was 213/81 mmHg, and heart rate 54 bpm. Neurological examination was unremarkable. Antihypertensive treatment with a calcium channel blocker was started and a Computed Tomography (CT) cranioencephalic was performed, excluding intracranial causes. The deterioration of the hemodynamic state and hypoxemia led to the patient being relocated to the emergency room. A summary echocardiography was performed with findings compatible with stress cardiomyopathy and a abdominopelvic CT revealed a massive heterogeneous lesion in the left adrenal gland. Due to the suspicion of pheochromacytoma associated with stress cardiomyopathy, the patient was admitted to the Intermediate Care Unit for hemodynamic monitoring. Other causes of arterial hypertension were excluded. In collaboration with endocrinology, treatment with alpha receptor antagonists was started. This case aims to alert to an infrequent diagnosis whose clinical presentation may not be the classically described but whose guidance requires a multidisciplinary team.

**Keywords:** *emergency, hypertension, pheochromocytoma, stress cardiomyopathy*

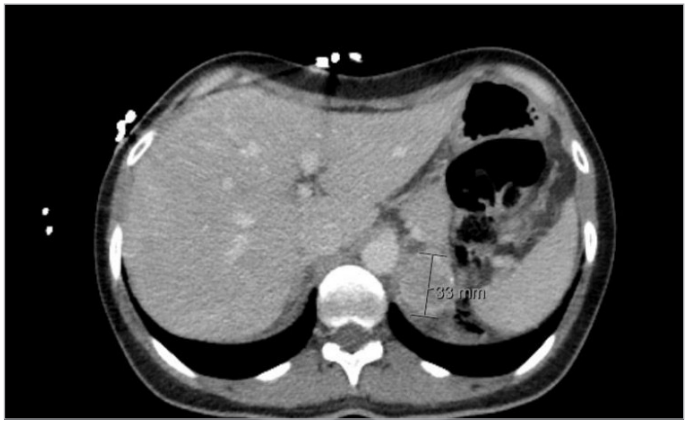


***Figure 1.*** *Complementary Diagnosis Exams - Abdominopelvic CT. Abdominopelvic CT showing large heterogeneous lesion in the left adrenal gland, measuring 33 mm, undetermined by this technique, suggesting better characterization by MRI*

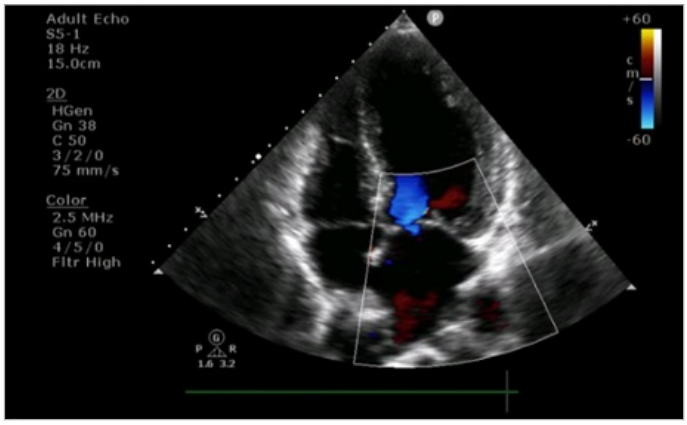


***Figure 2.*** *Complementary Diagnosis Exams - echocardiogram. Transthoracic echocardiogram revealing anterolateral and apical mediodistal hypokinesia. Mild depression of left ventricular systolic function, with an ejection fraction of 41%.*

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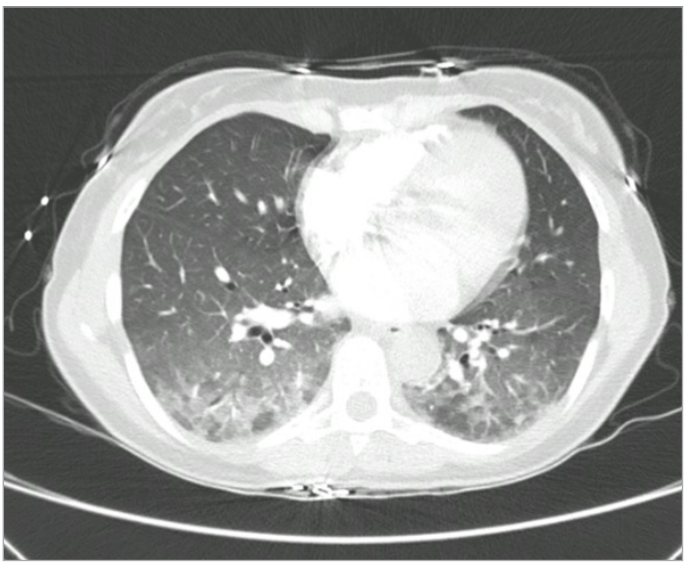

***Figure 3.*** *Complementary Diagnosis Exams - thorax CT. Thorax CT showing bilateral and symmetrical ground-glass densification can be identified in both lower lobes, compatible with alveolar edema.*

[Abstract:0056]

## ADVANCED PRIMARY HYPERPARATHYROIDISM AND THE ROLE OF QUACKERY IN DIAGNOSTIC DELAY: A CASE REPORT

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Primary hyperparathyroidism (PHPT) is considered one of the common endocrinopathies, after diabetes and thyroid diseases, and is caused by excess parathyroid hormone (PTH). In the majority of cases, the cause is solitary adenoma in parathyroid glands followed by parathyroid hyperplasia and carcinoma. But, where the world is discussing advancements in the field of endocrinology and the asymptomatic forms of this disease, we present a 'textbook' case of a young woman having features of advanced PHPT being inappropriately managed for years by quacks, a sad reality that still holds true in rural areas of Pakistan. It was the first presentation of this 34-year-old lady to a medical clinic with a history of body aches and gradual changes in her physical appearance over the past eight years. She had features of advanced PHPT including skeletal deformities, fragility fractures, brown tumours, acroosteolysis, and renal calculi. Her diagnostic workup, including biochemical, radiological, and scintigraphic testing, was consistent with PHPT from a right parathyroid adenoma, hence, referred to surgeons for minimally invasive parathyroidectomy. This case highlighted a number of factors that could have prevented irreversible skeletal deformities that led not only to pathological but adverse psychological impact on our patient. Facilitating access to health care in remote areas of underdeveloped countries and encouraging timely presentation to appropriate medical facilities are paramount to tackling the quackery that is prevalent, even in this era of modern science.

***Keywords:*** *primary hyperparathyroidism, parathyroid adenoma, quackery, acroosteolysis, brown tumour*

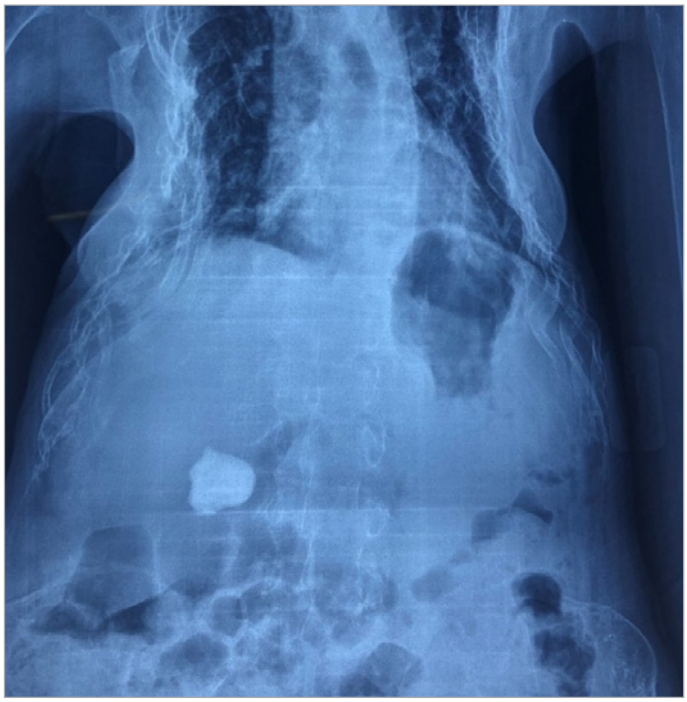

***Figure 1.*** *Right kidney staghorn calculus on abdominal film. Multiple insufficiency fractures in the ribs with reduced bone density leading to deformed rib cage.*

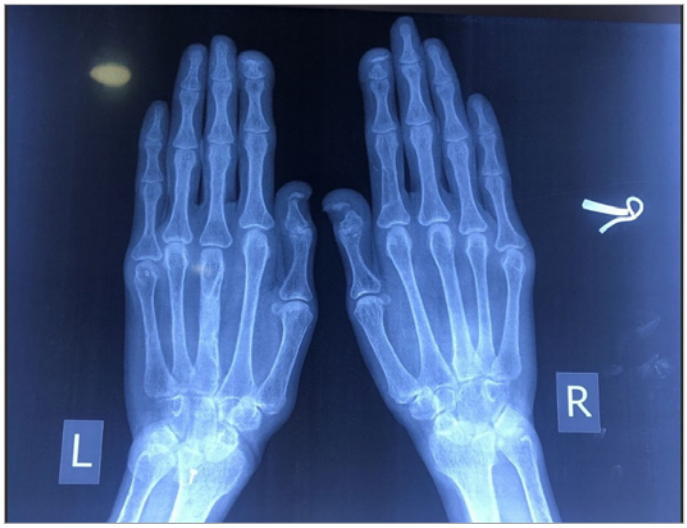


***Figure 2.*** *Acro-osteolysis involving distal phalanges of bilateral first and second fingers. Brown tumours in proximal phalanx of right index finger and distal end of left third metacarpal.*

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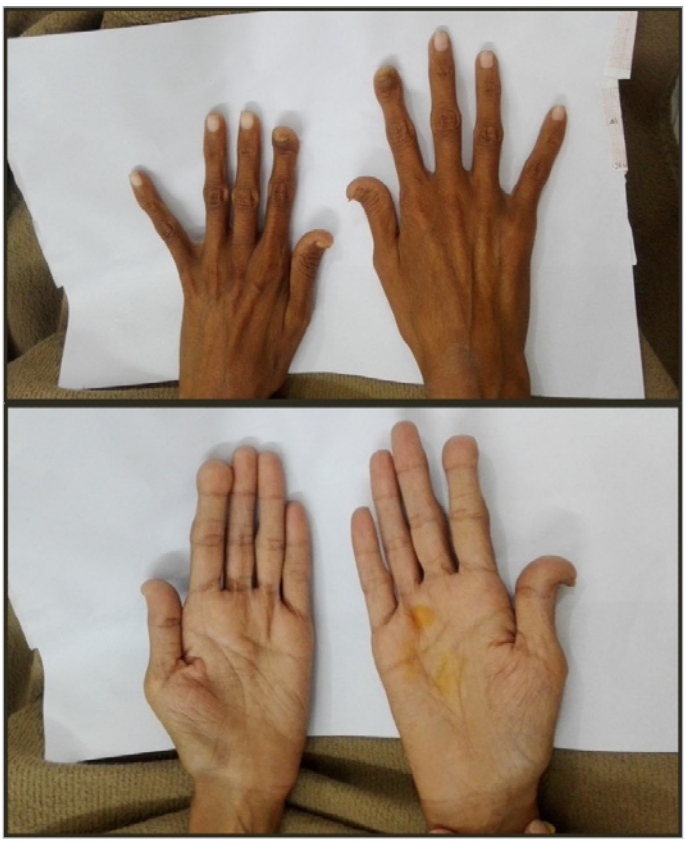

*Figure 3. Hands showing wide, flattened and abnormally short distal phalanges of thumbs and index fingers with dystrophic nails.*

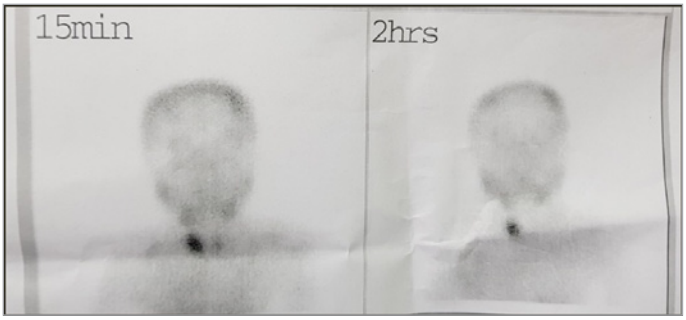


*Figure 4. (Tc – 99 Sestamibi scan) persistently increased tracer uptake in the focal area in the region of right lobe of thyroid while washout of tracer is seen from the rest of thyroid in delayed image suggestive of parathyroid adenoma.*

[Abstract:0060]

# IDENTIFYING NOVEL CLINICAL BIOMARKERS FOR EARLIER DETECTION OF DIABETIC NEPHROPATHY IN CHRONIC KIDNEY DISEASE PROGRESSION TO END-STAGE RENAL DISEASE

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**Introduction:** Diabetic nephropathy (DN) is a significant microangiopathic complication in both type 1 and type 2 diabetes mellitus, leading to end-stage renal disease (ESRD) and increasing the risk of cardiovascular disease (CVD). Early detection and intervention for DN are crucial to attenuate adverse outcomes, including progression to ESRD and increased morbidity and mortality from CVD. Despite the availability of biomarkers like urine albumin-to-creatinine ratio (uACR) and estimated glomerular filtration rate (eGFR), these have their limitations. This study explores novel biomarkers for improved DN detection.

**Methods:** A comprehensive literature search until September 2023 identified emerging biomarkers for DN diagnosis.

**Results:** Novel biomarkers show promise, including TNFR, KIM-1, MCP-1, RBP, uric acid, and copeptin. TNFR and L-FABP are clinically effective, with TNFR indicating inflammation and apoptosis, elevating CVD risk. KIM-1 correlates with kidney injury, MCP-1 with inflammation, and RBP with albuminuria and reduced eGFR. Elevated uric acid levels indicate ESRD risk. Copeptin, a vasopressin surrogate, is linked to ESRD progression.

**Conclusions:** Timely detection of diabetic nephropathy is pivotal for proactive intervention. Emerging biomarkers hold the potential for DN diagnosis and progression assessment. Yet, further rigorous research and targeted clinical trials are imperative to establish their efficacy, cost-efficiency, and patient relevance. Standardised criteria, diverse validation, and robust diagnostic accuracy are prerequisites prior to clinical implementation. Enhanced biomarkers are indispensable for advancing outcomes and mitigating morbidity/mortality linked with DN and CVD.

*Keywords: diabetes, chronic kidney disease, end stage renal disease, biomarkers*

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[Abstract:0061]

# EXPLORING THE POTENTIAL IMPACT OF PLACENTAL LACTOGEN ON B-CELL FUNCTION IN TYPE 2 DIABETES MELLITUS: A PROMISING AVENUE FOR NOVEL THERAPEUTIC STRATEGIES

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**Background:** Type 2 diabetes (T2DM) is a global health concern, affecting over 422 million people worldwide, with increasing prevalence. T2DM is characterised by chronic hyperglycaemia, linked to the decline in β-cell function and mass, known as "β-cell plasticity." During pregnancy, placental lactogen (PL) and its receptor, prolactin receptor (PRLR), play crucial roles in maintaining β-cell health. This proposed study aims to explore the potential of exogenous PL in targeting PRLR to improve β-cell function and mass in T2DM.

**Methods:** The proposed experimental design combines animal models and *in vitro* islets. Two sets of animal models—control and treatment with exogenous PL—are used, alongside *in vitro* islets and divided into control and treatment groups. Several parameters, including β-cell proliferation, growth, neogenesis, and apoptosis are to be assessed. Immunohistochemistry techniques will quantify β-cell mass, while insulin secretion assays will gauge β-cell function.

**Results:** This study seeks to determine whether exogenous PL can enhance β-cell mass and function, ultimately leading to improved glycaemic control in both animal models and *in vitro* islets. Successful results have the potential to reshape the understanding of T2DM progression and open doors to novel therapeutic strategies.

**Conclusions:** In conclusion, this experimental design is poised to yield significant findings regarding the potential of exogenous PL to target PRLR in T2DM. If successful, it provides valuable evidence for the use of placental hormones in the treatment of T2DM, thereby opening a frontier of research into the development of novel therapeutic strategies.

***Keywords:*** *placental lactogen, B-cell function, type 2 diabetes mellitus, prolactin receptor*

[Abstract:0073]

# INVESTIGATION OF CHANGES IN OBESITY CENTER APPLICATIONS ACCORDING TO GENDER AFTER THE COVID-19 PANDEMIC

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**Purpose:** The obesity rate is lower in men (35%) than women (44%) but the rate of increase in men (107%-M / 34%-F) is much higher in Turkey. Still, female patients apply to obesity centres more frequently than men. After obesity was announced as a major cause of morbidity and mortality during COVID-19 pandemic, awareness increased in society. Here, it was aimed to investigate whether this awareness was reflected in obesity centre applications for both genders.

**Methods:** All new patients seen in our obesity centre in the same month before and after COVID-19 pandemic (August 2019 and August 2023) were included in the study. Patient files were screened to record age, gender, and the number of new patients. The difference between genders in obesity centre applications was calculated for both periods using SPSS.

**Findings:** 18 male-142 female-totally 160 new patients were seen in August 2019 and 39 male-201 female-totally 240 new patients in August 2023 in our obesity centre. The ratios were: 16.25% males, 83.75% females before and 11.25% males and 88.75% females after the pandemic. There was no statistically significant difference in gender ratios between the pre- and post- pandemic period for obesity centre applications.

**Conclusions:** Turkey has one of the highest obesity rates in Europe. General obesity centre applications increased after COVID-19 pandemic, but despite the alarming rate of increase in obesity among men, the expected awareness did not have as much of an impact in men. Motivating all patients, including males, to seek obesity treatment is crucial for public health.

***Keywords:*** *obesity, obesity centres, COVID-19 pandemic*

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[Abstract:0091]

# THE ROLE OF SERUM ASPROSIN LEVELS IN PREDICTING THE SEVERITY OF CORONARY ARTERY DISEASE IN PATIENTS WITH DIABETES MELLITUS

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**Background:** Asprosin is an emerging biomarker that plays a role in metabolic diseases. This study investigates asprosin as a predictive marker for coronary artery disease (CAD) severity in diabetic patients.

**Methods:** 181 diabetic patients and 60 healthy controls were analysed. CAD severity was assessed using SYNTAX score. Diabetic patients were divided into 3 groups. Group-1=patients without CAD, group-2=patients with low SYNTAX score, and group-3=patients with moderate-high SYNTAX score. Asprosin levels were measured for all participants using an enzyme-linked immunosorbent assay (ELISA).

**Results:** Asprosin levels were significantly higher in patient group compared to control group (p <0.001). Asprosin levels were significantly higher in group-3 compared to grup-1 and group-2 (p =0.002). In logistic regression analysis, asprosin levels independently predicted patients with moderate-high SYNTAX scores. According to this analysis, 1 ng/mL increase in asprosin level was found to increase the risk of having moderate-high SYNTAX score by 14.1%. When the threshold value of asprosin level was set as 22.17 ng/mL, it predicted patients with moderate-high SYNTAX score with 63.6% sensitivity and 62.6% specificity. In multivariate regression analysis, SYNTAX score independently correlated with asprosin level.

**Conclusions:** This is the first study in the literature to demonstrate a positive correlation between asprosin levels and SYNTAX scores in diabetic patients with CAD. More comprehensive studies with larger groups are needed.

***Keywords:*** *diabetes mellitus, asprosin, coronary artery disease, SYNTAX score*

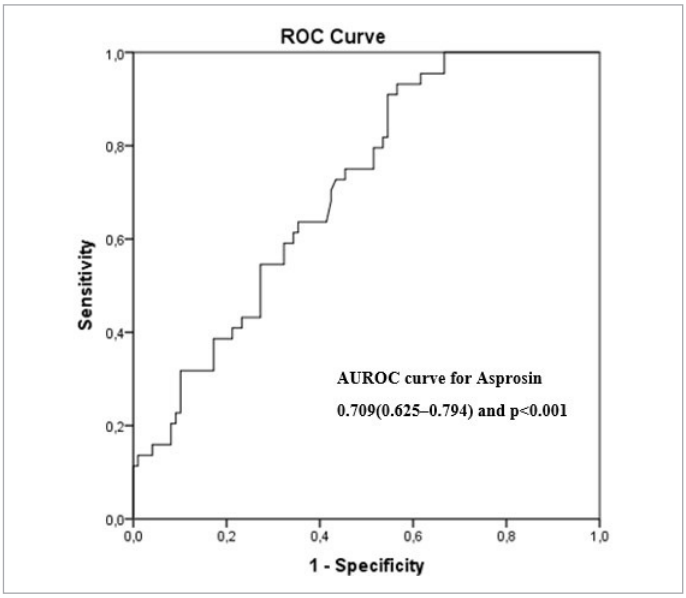


***Figure 1.*** *ROC analysis of serum asprosin levels to predict the presence of a moderate-high SYNTAX score in diabetic patients with coronary artery disease.*
*When the ROC analysis was performed to evaluate the importance of serum asprosin level in determining patients with moderate-high SYNTAX score, the area under the curve (AUC) was found to be 0.709. According to the analysis, when the threshold value for serum asprosin level was taken as 22.17 ng/ml, it predicted patients with moderate-high SYNTAX score with 63.6% sensitivity and 62.6% specificity.*

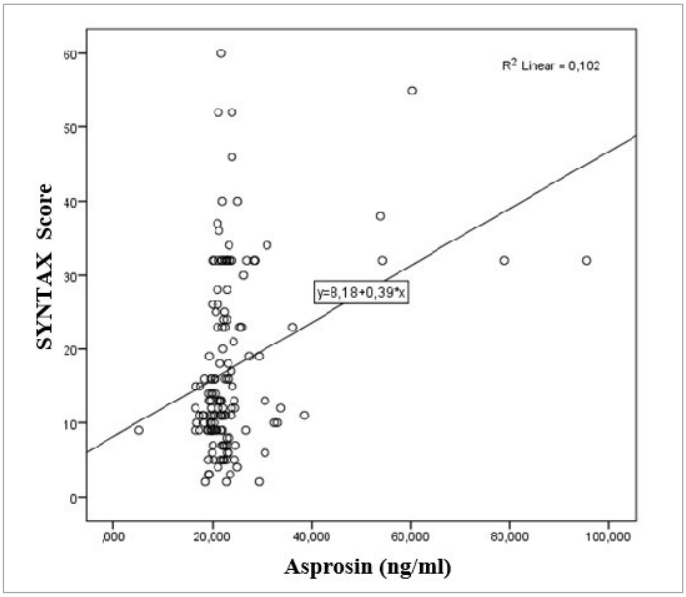


***Figure 2.*** *Scatterplot diagram for the relationship between serum asprosin level and SYNTAX Score.*
*When univariate correlation analysis was performed to determine the parameters associated with serum asprosin level, a positive correlation was found between serum asprosin level and SYNTAX score and between serum asprosin level and DM duration. In addition, multivariate regression analysis revealed that SYNTAX score and duration of DM were independently correlated with serum asprosin level.*


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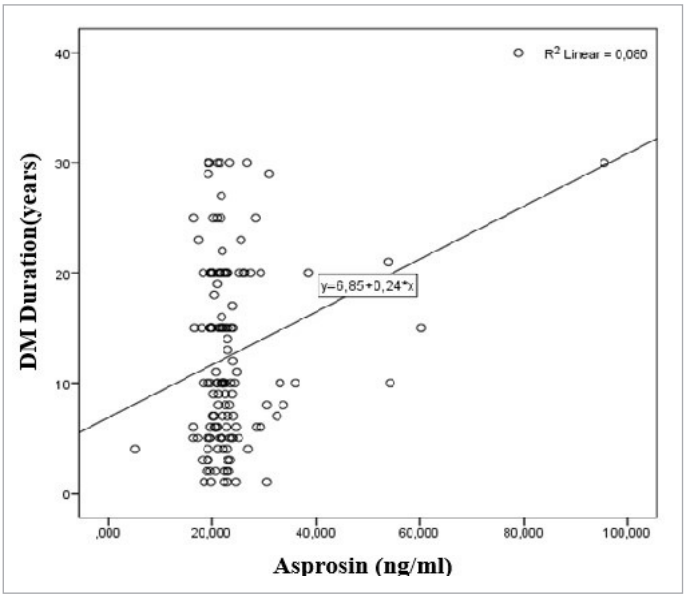


*Figure 3. Scatterplot diagram for the relationship between serum asprosin level and DM Duration.*

*When univariate correlation analysis was performed to determine the parameters associated with serum asprosin level, a positive correlation was found between serum asprosin level and SYNTAX score and between serum asprosin level and DM duration. In addition, multivariate regression analysis revealed that SYNTAX score and duration of DM were independently correlated with serum asprosin level.*

| Variables | Control Group (n=60) | Patient Group (n=181) | p-value |
|---|---|---|---|
| Gender (male) | 31 (51.7%) | 116 (64.1%) | 0.097 |
| Age (years)* | 58.5±6.71 | 60.3±6.65 | 0.069 |
| BMI (kg/m²)* | 28.7±2.81 | 29,2±3.84 | 0.268 |
| Glucose (mg/dL)* | 87.8±8.17 | 180.2±69.3 | <0.001 |
| WBC (White cell count) ($10^3$/µL )* | 7.31±1.83 | 7.78±1.31 | 0.107 |
| RBC (Red cell count) ($10^6$/µL)* | 4.72±0.35 | 4.70±0.55 | 0.794 |
| HB (Hemoglobin) (g/dL)* | 13.1±1.72 | 13.3±1.39 | 0.454 |
| PLT (Platelet count ) (K/mm³)* | 262.5±60.3 | 253.7±78.8 | 0.427 |
| Urea (mg/dl), IQR | 22.0 (20.0-28.0) | 31.0 (25.0-36.5) | <0.001 |
| Creatinine (mg/dl)* | 22.0 (20.0-28.0) | 31.0 (25.0-36.5) | <0.001 |
| eGFR (mL/min/1.73m²)* | 112.7±14.0 | 90.8±17.2 | <0.001 |
| Na (mmol/L)* | 139.2±2.39 | 136.9±3.06 | <0.001 |
| K (mmol/L)* | 4.39±0.32 | 4.42±0.44 | 0.649 |
| Uric acid (mg/dl)* | 4.57±1.27 | 5.02±1.37 | 0.031 |
| Albumin (g/L)* | 42.1±2.70 | 40.1±4.46 | <0.001 |
| ALT(Alanine aminotransferase) (u/L), IQR | 17.0 (12.0-24.0) | 16.0 (13.0-22.5) | 0.604 |
| AST(Aspartate aminotransferase) (u/L)* | 19.1±4.30 | 20.5±8.67 | 0.094 |
| Triglyceride (mg/dl), IQR | 130.0 (92.2-209.2) | 165.0 (122.0-254.0) | 0.045 |
| HDL (mg/dl)* | 52.4±9.75 | 39.7±8.54 | <0.001 |
| LDL (mg/dl)* | 139.8±36.6 | 126.4±33.7 | 0.010 |
| Total Cholesterol (mg/dl)* | 215.7±49.8 | 187.4±47.5 | <0.001 |
| Asprosin (ng/ml), IQR | 8.08 (5.18-13.5) | 21.6 (19.5-23.6) | <0.001 |

***Table 1.** Comparison of demographic and laboratory findings between diabetic patients and healthy controls.*

**: Mean±standard deviation, IQR: Interquartile range.*

| Variables | Group-1 (n=38) | Group-2 (n=99) | Group-3 (n=44) | p-value |
|---|---|---|---|---|
| Gender (male) | 20 (52.6%) | 65 (65.7%) | 31 (70.5%) | 0.245 |
| Age (years)* | 58.2±7.09 | 60.6±6.32 | 61.3±6.74 | 0.081 |
| BMI (kg/m²)* | 30.3±3.71 | 29.2±3.98 | 28.3±3.47 | 0.064 |
| DM duration (years), IQR | 6.0 (3.0-11.2)a,b | 10.0 (5.0-20.0) | 14.0 (8.0-20.0) | <0.001 |
| Nephropathy | 12 (31.6%) | 19 (19.2%) | 7 (15.9%) | 0.247 |
| Retinopathy | 12 (31.6%) | 29 (29.3%) | 13 (29.5%) | 0.966 |
| Neuropathy | 17 (44.7%) | 57 (57.6%) | 26 (59.1%) | 0.340 |
| PAD | 3 (7.9%) | 14 (14.1%) | 10 (22.7%) | 0.164 |
| CVD | 3 (7.9%) | 15 (15.2%) | 7 (15.9%) | 0.472 |
| Smoking | 17 (44.7%) | 49 (49.5%) | 26 (59.1%) | 0.493 |
| Duration of smoking (years), IQR | 22.5 (12.5-35.0) | 30.0 (20.0-40.0) | 30.0 (20.0-37.5) | 0.316 |
| HT | 27 (71.1%) | 86 (86.9%) | 37 (84.1%) | 0.165 |
| Glucose (mg/dL)* | 169.6±57.2 | 185.4±72.4 | 177.7±71.8 | 0.474 |
| HbA1c (NGSP, %)* | 7.70±1.79 | 8.13±1.87 | 8.42±2.12 | 0.236 |
| HB (g/dL)* | 13.5±1.38 | 13.09±1.26 | 13.65±1.62 | 0.071 |
| Creatinine (mg/dl)* | 0.77±0.17 | 0.81±0.29 | 0.82±0.33 | 0.701 |
| eGFR (mL/min/1.73m²)* | 96.4±14.6 | 88.4±16.5 | 91.1±19.7 | 0.051 |
| Na (mmol/L)* | 137.1±2.97 | 136.5±3.16 | 137.7±2.78 | 0.077 |
| K (mmol/L)* | 4.42±0.38 | 4.36±0.46 | 4.55±0.40 | 0.059 |
| Albumin (g/L)* | 40.8±4.25 | 39.8±4.66 | 40.1±4.19 | 0.609 |
| ALT (u/L)* | 20.3±7.54 | 18.3±9.73 | 16.7±7.21 | 0.170 |
| AST (u/L)* | 21.1±8.24 | 21.0±9.78 | 19.0±5.95 | 0.389 |
| Triglyceride (mg/dl), IQR | 145.5 (113.5-211.2) | 175.0 (133.0-264.0) | 167.0 (111.2-235.7) | 0.254 |
| HDL (mg/dl)* | 41.0±8.48 | 39.3±9.02 | 39.2±7.54 | 0.564 |
| LDL (mg/dl)* | 118±33.1 | 125.9±37.8 | 134.4±21.0 | 0.062 |
| Total Cholesterol (mg/dl)* | 189.3±41.6 | 193.0±51.1 | 173.6±41.8 | 0.083 |
| SYNTAX Score* | - | 10.5±4.37 | 32.7±8.78 | <0.001 |
| Asprosin (ng/ml), IQR | 19.1 (17.9-22.4)b | 21.5 (19.6-23.2)c | 23.0 (21.4-26.2) | 0.002 |

***Table 2.** Comparison of demographic features, clinical characteristics and biochemical parameters of diabetic patients between groups.*

*Group-1: Diabetic patients without coronary artery disease, Group-2: Diabetic patients with low SYNTAX Score (≤ 22), Group-3:: Diabetic patients with moderate-high SYNTAX Score (> 22) a: Statistically significant relationship between Group-1 and Group-2 (p<0.05), b: Statistically significant relationship between Group 1 and Group 3 (p<0.05), c: Statistically significant relationship between Group 2 and Group 3 (p<0.05) *Mean±standard deviation, IQR: Interquartile range, WBC: White cell count, RBC: Red cell count, HB: haemoglobin, PLT: platelet count, ALT: Alanine aminotransferase, AST: Aspartate aminotransferase.*

| Variables | Odds Ratio | 95 % Confidence Interval | p-value |
|---|---|---|---|
| LDL (mg/dl) | 1.009 | 0.991-1.026 | 0.326 |
| Asprosin (ng/ml) | 1.141 | 1.012-1.286 | 0.031 |

***Table 3.** Variable regression analysis for detection of DM patients with moderate-high SYNTAX score.*

*LDL: Low-density lipoprotein.*

| | Univariate analysis | Univariate analysis | Multivariate analysis | Multivariate analysis |
|---|---|---|---|---|
| Variables | p | r | p | β |
| SYNTAX Score | < 0.001 | 0.324 | < 0.001 | 0.241 |
| DM Duration | < 0.001 | 0.282 | 0.003 | 0.281 |

***Table 4.** The parameters associated with serum asprosin level and linear regression analysis for parameters significantly correlated with serum asprosin level in diabetic patients.*

*SYNTAX: Synergy between Percutaneous Coronary Intervention with Taxus and Cardiac Surgery * R2Adjusted =0.148*


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[Abstract:0096]

## A LONGITUDINAL INCREASE IN SERUM GAMMA-GLUTAMYL TRANSFERASE LEVELS, BUT NOT IN ALANINE AMINOTRANSFERASE LEVELS, IMPROVES THE PREDICTION OF RISK OF IMPAIRED FASTING GLUCOSE IN MEN

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**Background:** None of the studies have investigated the effect of longitudinal changes in individual serum alanine aminotransferase (ALT) and gamma-glutamyl transferase (GGT) levels on the risk of Impaired fasting glucose (IFG).

**Aims:** We aimed to investigate the association between changes in the serum ALT and GGT levels and the risk of IFG.

**Results:** A total of 3,598 men and 3,275 women were enrolled in the study. We performed a follow-up test of serum ALT or GGT in each individual, and classified the cases in which the serum ALT or GGT level was increased or decreased during the follow-up test compared to the baseline. The Cox proportional hazard regression analysis was performed after adjusting for variables, such as age, body mass index, log-transformed weekly alcohol consumption, hypertension, dyslipidaemia, and current smoking. According to the multivariate Cox proportional hazards model, the hazard ratio was 1.76 (95% Confidence Interval; P value, 1.45–2.12; <0.001) in male subjects with an increased serum GGT level compared to male subjects with a decrease in the serum GGT level at follow-up compared to the baseline. However, the relationship between the serum ALT level and incidence of new-onset IFG was not statistically significant in both genders; and the relationship between GGT and IFG in women was also not statistically significant.

**Conclusions:** We revealed that a longitudinal increase in serum GGT levels was related to an increased risk of IFG in men. Therefore, monitoring the changes in serum GGT levels is important for predicting new-onset IFG in men.

***Keywords:*** *impaired fasting glucose, alanine aminotransferase, gamma-glutamyl transferase*

[Abstract:0098]

## IMPACT OF NUTRITIONAL INTERVENTIONS ON HOSPITALIZED PATIENT OUTCOMES

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Diagnosis of disease-related malnutrition through GLIM criteria in patients admitted to a tertiary-level hospital.Descriptive, observational, retrospective, and single-centre study of patients admitted to Internal Medicine in a tertiary-level hospital in northern Spain. Data recorded from March 2021, with a review of patients' medical records. Sociodemographic variables, risk factors, as well as clinical and analytical variables of interest were recorded.We analysed a total of 297 patients, with a mean age of 77 ± 16 years, with 53% (156) being women. The mean body mass index (BMI) of our sample was 28.5 kg/m², with an average weight of 73.3 ± 17 kg and an average height of 160.3 ± 7 cm. The other clinical characteristics of the admitted patients are shown in Figure 1.Retrospectively, we applied the GLIM criteria to all admitted patients, with 51.8% (154) of the sample meeting diagnostic criteria (1 phenotypic + 1 etiological) compared to 18% (53) identified in the discharge report as caloric-protein malnutrition. No patient underwent malnutrition screening during their admission.

Table 1 describes the analytical profile of admitted patients. Patients diagnosed with caloric-protein malnutrition had a higher prevalence of very high or high cardiovascular risk stratification at 69% compared to 35% of those without malnutrition, with a p-value of 0.002. Similarly, patients who met GLIM criteria had a one-year mortality prevalence of 55%, compared to 45% of those without malnutrition, with a p-value of 0.0001. The assessment of disease-related malnutrition remains inadequately addressed during hospital admission despite its high prevalence and morbidity.

***Keywords:*** *malnutrition related to disease, GLIM criteria, caloric-protein malnutrition*

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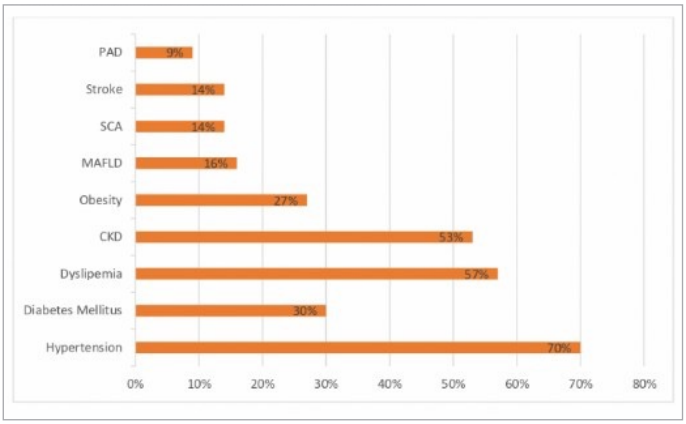


*Figure 1.*

| Table 1. | Media | DE |
|---|---|---|
| Glucose (mg/dl) | 122,3 | 56,9 |
| Glomerular Filtration Rate (CKD-EPI) | 62,4 | 26,3 |
| Creatinine (mg/dl) | 1,2 | 0,9 |
| Urea (mg/dl) | 73,1 | 54,2 |
| Vitamine D (ng/ml) | 19,5 | 16,4 |
| LDL-c (mg/dl) | 96,6 | 38,9 |
| HDL-c (mg/dl) | 46,5 | 17,5 |
| Total Cholesterol (mg/dl) | 156,2 | 49,2 |
| Triglycerides (mg/dl) | 128,0 | 66,7 |
| HbAc1 (% mmol/mol) | 6,2 | 0,9 |
| Saturation Index (mg/dl) | 97,3 | 35,2 |
| Ferritin (mg/dl) | 47,6 | 16,0 |
| Prealbumin (mg/ml) | 17,9 | 8,2 |
| Albúmin (mg/ml) | 3,9 | 2,4 |
| Lymphocytes (mm3/ml) | 1350 | 750 |

*Table 1.*

[Abstract:0130]

# ACHIEVEMENT OF NORMOGLYCEMIA WITH TIRZEPATIDE IN TYPE 2 DIABETES MELLITUS: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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[2] Second Department of Cardiology, Aristotle University of Thessaloniki, General Hospital "Hippokration", Thessaloniki, Greece

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**Background:** Glycated haemoglobin (HbA1c) is crucial for assessing glycaemic control in diabetes, with lower than 7% recommended for non-pregnant adults. However, achieving target levels is challenging in type 2 diabetes mellitus (T2DM). Tirzepatide, a novel glucose-dependent insulinotropic polypeptide (GIP)/glucagon-like peptide 1 (GLP-1) receptor agonist, shows promise in improving glycaemic control without increasing hypoglycaemia risk.

**Objective:** Investigate if tirzepatide increases the likelihood of achieving normoglycemia (HbA1c < 5.7%) in T2DM.

**Methods:** Phase 2/3 randomized controlled trials (RCTs), indexed in PubMed and Cochrane Library databases, published until October 6, 2023, were searched. Nine RCTs with 10,121 participants, comparing tirzepatide (5, 10, or 15 mg, once-weekly) to control, were finally included.

**Results:** Tirzepatide significantly increased the odds of achieving normoglycemia by over 16 times compared to control (OR = 16.81, 95% CI: 7.83 to 36.09, I2 = 93%, p < 0.001). Subgroup analyses based on comparators (placebo, GLP-1 receptor agonist, insulin) showed no significant differences in tirzepatide efficacy for achieving normoglycemia (p_subgroup = 0.07).

**Conclusions:** Tirzepatide emerges as a highly effective antidiabetic drug, significantly increasing the likelihood of achieving normoglycemia in T2DM patients. With minimal impact on hypoglycaemia risk and a favourable safety profile, tirzepatide may revolutionize T2DM treatment. Future research should explore potential effects on microvascular complications, particularly diabetic retinopathy. Anticipated results on cardiovascular safety and efficacy will further define tirzepatide's role in T2DM management.



**DOI:** 10.12890/2024_V11Sup1

*Keywords:* *tirzepatide, type 2 diabetes, normoglycemia*

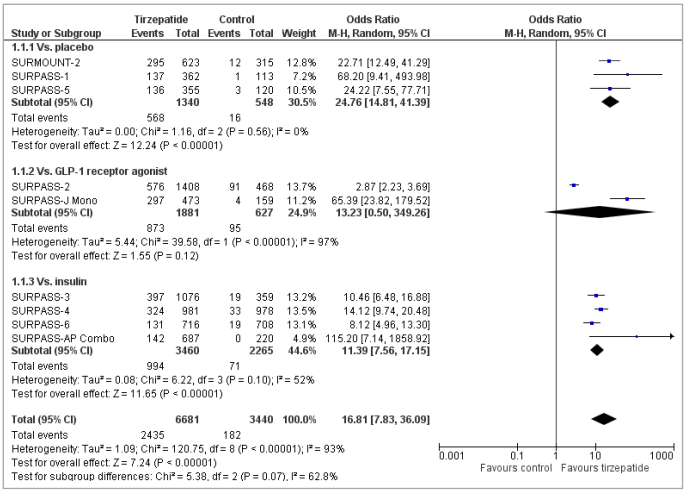


***Figure 1.*** *Effect of tirzepatide versus control on the odds for achieving HbA1c levels lower than 5.7% in T2DM.*

[Abstract:0136]

## INDIRECT SIDE-EFFECTS OF DIABETES

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54-year-old female patient, with personal history of hypertension and type 2 DM. She is undergoing treatment with oxcarbazepine, enalapril 20/lercanidipine, metformin, semaglutide.She went to the emergency department for an incoercible emetic syndrome of one month's evolution coinciding with the taking of Semaglutide. In this context, she presented with intolerance to food and water intake, pasty stools, no pathological products, loss of 14 kg. In addition, decreased diuresis in the last few days and a feeling of thirst. On examination there were clear signs of dehydration. Tests were requested with findings of acute renal failure (creatinine 10.23 mg/dL), hyperuricaemia 204 mg/dL, GGT 525 U/L, haemogram, coagulation and other normal ions. The clinical evolution during his hospitalisation was excellent and particularly striking was the rapid recovery of renal function after discontinuation of semaglutide and intensive fluid therapy, with creatinine dropping to 0.60 mg/dL in the first 48 hours.

Type 2 DM is a disease with a high prevalence in the population, and probably the most important determinant for this increase is the huge rise in obesity. Therefore, the use of weight-reducing is of great value, such as GLP-1R agonists.In the case of our patient, who presented with severe acute renal failure (without previous renal disease) and with no other apparent precipitating factor to justify it, together with the striking and rapid improvement after discontinuation of treatment and intensive serum therapy, it seems likely to be related to the gastrointestinal effects of semaglutide use, that would have led to severe dehydration.

*Keywords:* *renal failure, diabetes, semaglutide*

[Abstract:0231]

## THE RELATIONSHIP OF SERUM PROENKEPHALIN A LEVELS WITH DIABETIC COMPLICATIONS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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**Purpose:** Enkephalins are endogenous opioid peptides. They are generated in central nervous system and in non-neuronal organs/systems like kidney, heart, and muscle tissue. Proenkephalin A is the first opioid peptide that is generated through a proteolytic process. Proenkephalins have been shown to be related to acute/chronic heart failure, sepsis, acute renal failure. Here; it was aimed to explore the relationship of proenkephalin A levels with biochemical parameters, micro/macrovascular complications and accompanying diseases in patients with type 2 diabetes mellitus (DM).

**Methods:** A total of 72 patients with DM (32 F, 38 M) and 37 age-gender matched control group individuals (24 F, 13 M), totalling 109 patients, were included in the study. Serum proenkephalin A levels, fasting blood glucose (FBG), HbA1c, estimated average glucose (eAG), glomerular filtration rate (GFR), microalbuminuria, accompanying diseases, and the presence of macrovascular disease were assessed in all individuals, and the results were evaluated using SPSS.

**Results:** The mean age was 57.4±9.9 years in the case group and 53.6±8.2 years in the control group. Microalbuminuria was present in 47 patients (65.3%) in the case group. Serum proenkephalin A levels were higher in the case group compared to the control group and had a positive correlation with GFR levels, indicating a relationship with the degree of renal function. Proenkephalin A levels were higher in patients with microalbuminuria and macrovascular disease. However, there was no significant relationship between proenkephalin and FBG, HbA1c, or eAG.

**Conclusions:** Proenkephalin A can be considered an important biomarker of renal function in patients with type 2 DM.

*Keywords:* *proenkephalin A, diabetes mellitus, diabetic nephropathy, micro/macrovascular complications*

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[Abstract:0255]

## AUTOIMMUNE ADRENAL INSUFFICIENCY: A CASE REPORT

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Primary adrenal insufficiency, or Addison's disease, arises from adrenal gland dysfunction. Its leading cause is autoimmune adrenalitis, marked by the presence of antibodies against 21-hydroxylase. Symptoms emerge when 90% of the gland is affected, including fatigue, weight loss, hypoglycaemia, and orthostatic hypotension. Skin and mucosal hyperpigmentation can also occur. This report presents a case of a 43-year-old woman with severe hypoglycaemia, weight loss, and characteristic hyperpigmentation, ultimately diagnosed with autoimmune adrenal insufficiency.

Diagnostic tests revealed basal cortisol levels below 0.1 µg/dL and elevated basal ACTH levels (1527 pg/mL), confirming primary adrenal insufficiency. Positive 21-hydroxylase autoantibodies (10.6 index) supported the autoimmune aetiology. Further tests ruled out associated autoimmune hypothyroidism. An abdominal CT scan showed no adrenal abnormalities. The patient's treatment involved hydrocortisone and fludrocortisone replacement therapy, leading to clinical improvement.

Key diagnostic markers for autoimmune adrenal insufficiency include basal cortisol levels below 3.6 µg/dL and elevated ACTH levels. The presence of 21-hydroxylase autoantibodies is highly sensitive (90%) and specific (>99%). These antibodies persist for decades, aiding in disease monitoring. Additionally, evaluation for co-existing autoimmune endocrinopathies is crucial.

References:

1. Hufthammer KO, Grytaas MA, Bratland E, Husebye ES. The natural history of 21-hydroxylase autoantibodies in autoimmune Addison's disease. 2021; p. 607–15.

2. Falorni A, Laureti S, et al. Italian Addison Network Study: Update of Diagnostic Criteria for Etiological Classification of Primary Adrenal Insufficiency. J Clin Endocrinol Metab. 2004;89(4):1598–604.

*Keywords:* *addison, cortisol, autoantibodies*

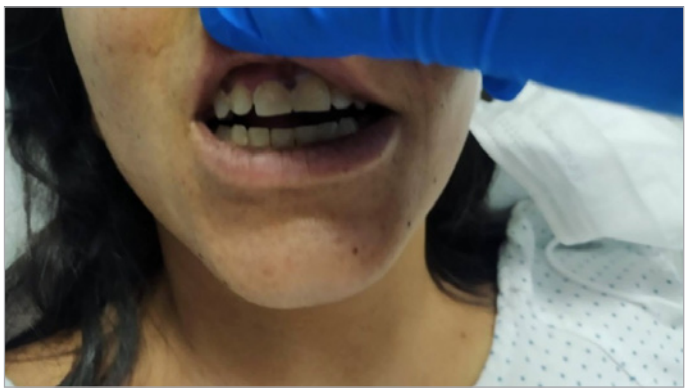

***Figure 1.*** *Gum hyperpigmentation.*

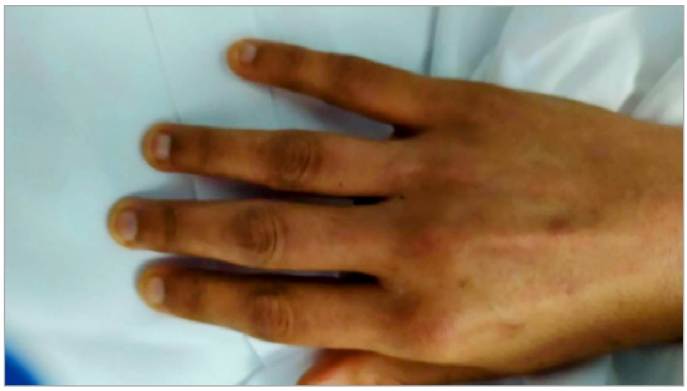

***Figure 2.*** *Hyperpigmentation.*

[Abstract:0273]

## DESCRIPTION OF THE CLINICAL-EPIDEMIOLOGICAL CHARACTERISTICS, MORBIDITY AND TREATMENT OF PATIENTS WITH DIABETES MELLITUS TYPE 2 DIAGNOSED WITH MORE THAN 65 YEARS

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**Objectives:** To know the clinical and analytical characteristics, quality of life, comorbidities and treatment of patients diagnosed with diabetes mellitus from 65 years.

**Methods:** It is a descriptive observational study. Three hundred internists belonging to the working groups of Diabetes, Obesity and Nutrition of the SEMI participated. The patients were included after signing the informed consent. Anthropometric and analytical data and scales of quality of life, frailty and sarcopenia

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were collected. Comprehensive geriatric assessment scales were used, such as the Mini Nutritional Assessment and the Barthel functional assessment scale.

**Results:** A total of 1183 patients were recruited. 87.9% had HBP, 71.3% dyslipidaemia and 68.2% a BMI >25 kg/m$^2$, 240 patients (20.3%) ischemic heart disease, 286 (24.1%) cerebrovascular disease, 197 (16.7%) peripheral vascular disease and 597 (50.5%) heart failure, most with preserved LVEF. In addition, 36.8% had atrial fibrillation and 34.6% moderate or severe chronic renal disease. Glycosylated haemoglobin was between 4.2% and 15% (mean 7.13%). The median Barthel index was 80 points, the Frail scale 2 points, MNA screening 10 points and SARC-F 4 points. Drug consumption was high and 91% were treated with ≥5 drugs. 55.9% were treated with metformin (661), 46.5% with IDPP4 (550), 31.2% with basal insulin (369), 18.2% with iSGLT2 (215) and 7.3% with sulfonylureas.

**Conclusions:** These patients are complex, with high comorbidity and polymedication. We should avoid antidiabetic drugs with a risk of hypoglycaemia and prioritize those cardioprotectors (iSGLT2 and aGLP1), since the high prevalence of heart failure and cardiovascular disease.

*Keywords:* *diabetes mellitus, heart failure, cardioprotectors*

[Abstract:0284]

## COMPLICATION OF RAPID GLYCAEMIC CONTROL IN DIABETIC PATIENTS: INSULIN EDEMA SYNDROME

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A 30-year-old woman with a 20-year history of DM1 with poor glycaemic control, micro- and macrovascular disease and lipodystrophy related to insulin injections. She presented with asthenia and generalised oedema of 1 month's duration without other associated symptoms, unresponsive to diuretics and coinciding with the placement of the Continuous subcutaneous insulin infusion (CSII) and with a rapid improvement in glycaemic control. Physical examination revealed severe pitting peripheral oedema and ascites. The rest of the examination was normal. Laboratory tests showed: HbA1c 10%; no haematological abnormalities; normal coagulation test, ionogram, NT-proBNP, thyroid and hepatorenal function; and no proteinuria. Chest X-ray, echocardiogram and abdominopelvic ultrasound were unremarkable. Prick test for insulin was negative. After 5 months, without any specific treatment, there was complete spontaneous resolution of the oedema.

Insulin oedema syndrome is a rare complication due to a rapid glucose correction. Its incidence is unknown and its severity varies from mild oedema of the extremities to ascites and pleural effusion. Although the exact pathophysiological mechanism is uncertain, it is related to increased capillary permeability, persistent hyperglycaemia, increased counterregulatory hormones and sodium retention. This is a diagnosis of exclusion, so it is important to rule out other processes causing oedema such as hypothyroidism, hypoalbuminemia, proteinuria, renal or cardiac failure and angioedema. It generally does not require treatment and resolves spontaneously. A reduction in insulin dose and a low-salt diet are recommended. In severe cases, the use of ephedrine, ACE inhibitors and verapamil has been studied with variable results.

*Keywords:* *peripheral oedema, insulin oedema syndrome, hyperglycaemia, continuous subcutaneous insulin infusion, glucose control*

[Abstract:0304]

## EVALUATION OF ACHIEVING GLYCEMIC CONTROL, BLOOD PRESSURE, AND DYSLIPIDEMIA GOALS IN TYPE 2 DIABETES PATIENTS: A SINGLE CENTER EXPERIENCE

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Department of Internal Medicine, University of Health Science, Istanbul Kartal Dr Lutfi Kirdar City Hospital, Istanbul, Turkey

**Aim:** We aimed to evaluate the achievement of glycaemic, blood pressure, and lipid targets in type 2 Diabetes Mellitus (T2DM) patients, identify the factors influencing the attainment of diabetic targets based on guidelines.

**Methods:** 519 patients with T2DM, aged ≥18 years who admitted to Kartal Dr. Lutfi Kirdar City Hospital Internal Medicine outpatient Clinic were recruited retrospectively. Pregnancy, chronic renal failure with renal replacement therapy, advanced liver disease, malignancy were exclusion criteria. Patients were analysed for glycaemic control, blood pressure control, and lipid targets according to European Society of Cardiology-European Atherosclerosis Society-2019 guidelines.

**Results:** 247 (47.6%) were male, and 272 (52.4%) were female. The mean age of the participants was 61.8±9.8 years. The most common comorbidity was hypertension (75.1%). 255 (49.1%) of the participants were obese (BMI >30 kg/ m$^2$). 23.6% of the patients achieved the blood pressure target, and 30.6% achieved glycaemic target with HbA1c<7%. Based on cardiovascular risk categories, 25.4% of the patients had target LDL-C, 24.8% had target Non-HDL-C. In univariate regression analysis, metformin (p=0.006), DPP4-inhibitors (p<0.001), and SGLT2-inhibitors (p=0.002) predicted achieving HbA1c <7%. In addition, metformin (p=0.012), GLP1-agonists (p=0.041) and DPP4-inhibitors (p=0.017) were associated with achieving LDL-C target. Metformin (p=0.017) use was also associated with achieving the Non-HDL-C target.

**Conclusions:** The study revealed a significantly low rate of

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achieving glycaemic, blood pressure, and lipid targets in T2DM patients. Metformin, DPP4-inhibitors, and SGLT2-inhibitors were particularly effective in achieving glycaemic control, while metformin was effective in achieving lipid targets. Factors effecting the achievement of individual treatment targets should be study in populational studies.

*Keywords:* *type 2 diabetes mellitus, targets, hyperlipidaemia, HbA1c*

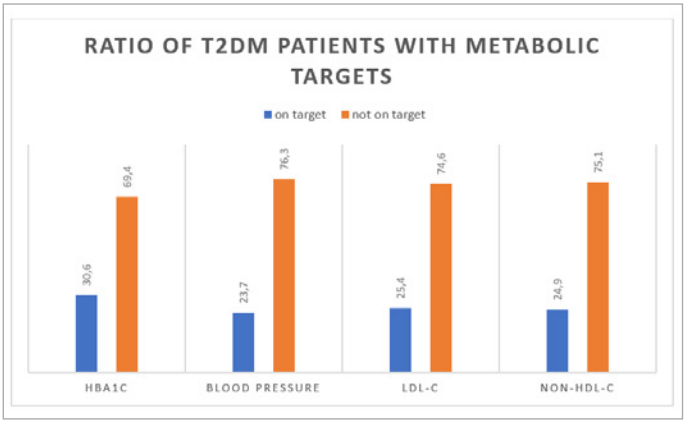


*Figure 1.*

[Abstract:0306]

## FACTORS EFFECTING THE MANAGEMENT OF GESTATIONAL DIABETIC PATIENTS

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Department of Internal Medicine, University of Health Science, Istanbul Kartal Dr Lutfi Kirdar City Hospital, Istanbul, Turkey

**Aim:** Due to the increasing incidence of gestational diabetes in recent years, we aimed to examine the metabolic parameters in patients with gestational diabetes and reveal the results regarding the control of diabetes, insulin requirement, maternal and newborn characteristics of women with gestational diabetes.
**Methods:** 131 female patients over the age of 18, pregnant, who were not diagnosed with diabetes before and applied to Kartal Dr. Lutfi Kirdar City Hospital Internal Medicine Diabetes Outpatient Clinic between 2020-2023 were included retrospectively. Patients with pre-pregnancy diabetes or pre-diabetes were excluded.
**Results:** Mean age was 32.7±5.2 years. Body Mass Index ( BMI) mean was 32.3±5.3 kg/m$^2$. Family history of DM was seen 72.5% of patients. The ratio of first pregnancy was 30.5%. 13.7% of the patients were diagnosed at the 28$^{th}$ week of gestation. 41.2% of patients needed insulin treatment. Preterm birth and macrosomia were correlated with fasting blood glucose (FBG) (p<0.05 for all). In binary logistic regression analysis, gestational week (28$^{th}$ week and later) (OD=26.03, p=0.045), BMI (OD=1.20, p=0.009), Hba1c (OD=18.13, p=0.012) levels correlated with insulin requirement. The rates of macrosomia (25.9% vs 0%, p<0.001) and caesarean section (88.9% vs 70.1%, p=0.011) are higher in patients with insulin requirement than with diet control.
**Conclusions:** Advanced maternal age, family history of diabetes, BMI are known risk factors in gestational diabetes patients. Gestational week, BMI and Hba1c were determinants of insulin treatment need in our study. We observed that patients with insulin treatment had higher risk of preterm birth, macrosomia and caesarean section. Therefore, optimal control of weight and FBG is important in patients with gestational diabetes.

*Keywords:* *diabetes, gestational diabetes, insulin, macrosomia, diet, Hba1c*

[Abstract:0311]

## TRIGLYCERIDE-GLUCOSE INDEX AND ANKLE-BRACHIAL INDEX FOR THE PREDICTION OF SUBCLINICAL ATHEROSCLEROSIS AND INSULIN RESISTANCE IN DIABETIC FAMILY'S NON-PREDIABETIC OFFSPRING

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[2] Deparment of Internal Medicine, Ankara University Medical School, Ankara, Turkey
[3] Deparment of Internal Medicine, T.R. Ministry of Health Kulu State Hospital, Konya, Turkey

**Objective:** Early recognition and modification of risk factors for diabetes mellitus (DM) are important to prevent complications and even the disease. This study aims to investigate the early detectability of insulin resistance (IR) and subclinical atherosclerosis with Triglyceride-glucose index (TyG) and ankle-brachial index (ABI) in people who have a family history of DM.
**Methods:** This study was single-centre, prospective, held between September 22 and July 23 in Bilkent City Hospital, carried out by laboratory data and measuring ABI.
**Results:** A statistically significant difference was observed between fasting plasma glucose (FPG), LDL-c, total cholesterol, triglyceride, and TyG-index of Individuals who had diabetic parents (DP, n=123) and the control group who had non-diabetic parents (NDP, n=88) (p<0.05).
There was no difference between the ABI and HOMA-IR of the DP and NDP groups. Although the FPG and triglyceride results were not statistically significant, found numerically higher in the group with both parents who were diabetic (BDP, n=103) than the group with one parent diabetic (ODP, n=20). Results of individuals whose only mother is diabetic (ODM, n=48) and whose only father is diabetic (ODF, n=55) were not statistically different.
However, except for HDL-c, the parameters were numerically higher in the ODM group than in the ODF group. It was found that there was no correlation between ABI and parameters including TyG-index in all groups.
**Conclusions:** Considering the atherosclerotic diseases associated with the TyG-index, TyG-index screening may be beneficial in

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the early diagnosis of IR and related diseases of the young adult population that has a family history of diabetes.

*Keywords:* *diabetic family history, triglyceride glucose index, ankle brachial index*

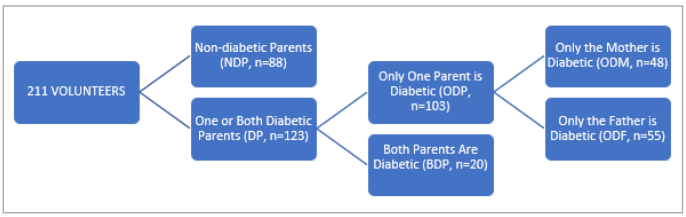


*Figure 1.* *Groups.*

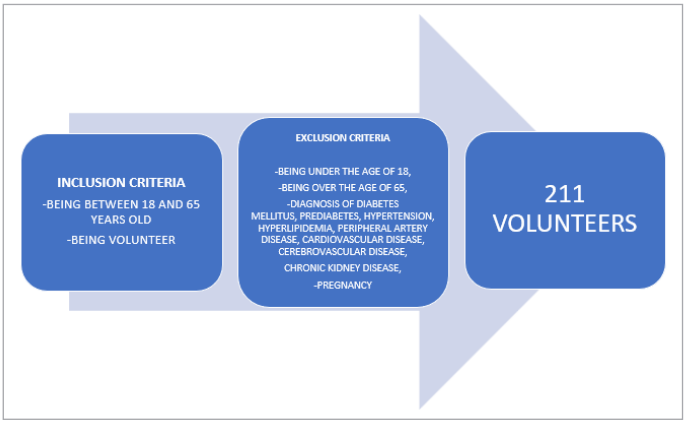


*Figure 2.* *Inclusion/Exclusion criterias.*

| | Non-diabetic Parents (NDP, n=88) | One or Both Diabetic Parents (DP, n=123) | P value | Only One Parent is Diabetic (ODP, n=103) | Both Parents Are Diabetic (BDP, n=20) | P value | Only the Mother is Diabetic (ODM, n=48) | Only the Father is Diabetic (ODF, n=55) | P value |
|---|---|---|---|---|---|---|---|---|---|
| Age | 27 (22-31) | 29 (25-38) | 0.004 | 29 (25-37) | 30 (26-43) | 0.380 | 33 (27-40) | 28 (24-32) | 0.002 |
| Gender Female(F) Male(M) | F: 58 (65.9%) M: 30 (34.1%) | F:91 (74%) M: 32 (26%) | 0.204 | F: 76 (73.8%) M: 27 (26.2%) | F:15 (75%) M: 5 (25%) | 0.91 | F:37 (77.1%) M:11 (22.9%) | F: 39 (70.9%) M: 31 (29.1%) | 0.477 |
| Smoker | 28 (31.8%) | 39 (31.7%) | 0.986 | 33 (32%) | 6 (30%) | 0.858 | 19 (39.6%) | 14 (25.5%) | 0.125 |
| Exercise regularly | 21 (23.9%) | 35 (28.5%) | 0.456 | 29 (28.2%) | 6 (30%) | 0.867 | 12 (25%) | 17 (30.9%) | 0.506 |
| Weight (kg) | 67 (59-83) | 70 (59-82) | 0.677 | 72 (59-84) | 65 (58-77) | 0.220 | 70 (62-80) | 75 (58-86) | 0.451 |
| Height (cm) | 168 (163-176) | 166 (162-171) | 0.090 | 167 (162-172) | 165 (163-167) | 0.169 | 166 (162-172) | 167 (163-173) | 0.468 |
| BMI (kg/m²) | 24.8 ±4.8 | 25.4 ±4.8 | 0.423 | 25.4 ±4.9 | 25 ±4.4 | 0.681 | 25.3 ±4.3 | 25.6 ±5.5 | 0.722 |
| Waist circumference (cm) | 82.5 (72-91) | 85 (75-98) | 0.087 | 84 (75-98) | 87,5 (74-102) | 0.519 | 85 (76,5-98) | 84 (73-97) | 0.667 |
| Hip circumference (cm) | 102 (94-112.5) | 106 (97-117) | 0.065 | 106 (95-114) | 107.5 (101.5-121.5) | 0.209 | 108 (98-119.5) | 104 (94-114) | 0.258 |
| Waist/Hip Ratio | 0.8 (0.745-0.84) | 0.81 (0.75-0.87) | 0.394 | 0.81 (0.75-0.88) | 0.79 (0.715-0.835) | 0.340 | 0.79 (0.75-0.88) | 0.82 (0.75-0.88) | 0.590 |

*Table 1.* *Sociodemografic Data.*

| | Non-diabetic Parents (NDP, n=88) | One or Both Diabetic Parents (DP, n=123) | P value | Only One Parent is Diabetic (ODP, n=103) | Both Parents Are Diabetic (BDP, n=20) | P value | Only the Mother is Diabetic (ODM, n=48) | Only the Father is Diabetic (ODF, n=55) | P value |
|---|---|---|---|---|---|---|---|---|---|
| FPG | 81 ±8 | 84 ±8 | 0.048 | 83 ±8 | 85 ±9 | 0.342 | 84 ±8 | 82 ±8 | 0.201 |
| HbA1c | 5.2 ±0.3 | 5.3 ±0.3 | 0.087 | 5.3 ±0.3 | 5.3 ±0.3 | 0.379 | 5.3 ±0.2 | 5.3 ±0.3 | 0.61 |
| LDL cholesterol | 96 ±25 | 109 ±32 | 0.002 | 108 ±32 | 114 ±29 | 0.444 | 111 ±34 | 105 ±31 | 0.32 |
| HDL cholesterol | 52 ±13 | 50 ±13 | 0.55 | 50 ±14 | 51 ±12 | 0.96 | 50 ±16 | 51 ±11 | 0.761 |
| Total cholesterol | 168 ±28 | 181 ±36 | 0.01 | 179 ±37 | 188 ±32 | 0.346 | 184 ±35 | 175 ±39 | 0.201 |
| Triglyceride | 78 (62-128) | 101 (70-138) | 0.049 | 101 (69-138) | 107 (78-133) | 0.686 | 106 (70-166) | 89 (69-124) | 0.192 |
| Insulin | 7.2 (4.8-11.2) | 8 (6-13) | 0.134 | 8.5 (5.6-12.1) | 6.2 (5.7-13.4) | 0.721 | 8.7 (6.5-12) | 8.5 (5.5-12.7) | 0.587 |
| HOMA-IR | 1.4 (1-2.2) | 1.7 (1.2-2.8) | 0.068 | 1.7 (1.2-2.7) | 1.5 (1.2-2.9) | 0.931 | 1.9 (1.3-2.8) | 1.6 (1.1-2.7) | 0.293 |
| TyG index | 4.38 (4.22-4.61) | 4.5 (4.33-4.7) | 0.023 | 4.5 (4.32-4.7) | 4.55 (4.41-4.7) | 0.600 | 4,51 (4.37-4.8) | 4.47 (4.31-4.66) | 0.171 |

*Table 2.* *Laboratory Results.*

| | Non-diabetic Parents (NDP, n=88) | One or Both Diabetic Parents (DP, n=123) | P value | Only One Parent is Diabetic (ODP, n=103) | Both Parents Are Diabetic (BDP, n=20) | P value | Only the Mother is Diabetic (ODM, n=48) | Only the Father is Diabetic (ODF, n=55) | P value |
|---|---|---|---|---|---|---|---|---|---|
| ABI | 1.09 ±0.08 | 1.1 ±0.08 | 0.257 | 1.1 ±0.08 | 1.12 ±0.1 | 0.527 | 1.11 ±0.09 | 1.1 ±0.08 | 0.697 |
| Cumulative LDL burden (LDL cholesterol x age | 2509 (1982-3362) | 3150 (2380-4260) | 0.001 | 3034 (2376-4088) | 3720 (3091-4449) | 0.13 | 3348 (2491-4614) | 2827 (2184-3591) | 0.042 |

*Table 3.* *Atherogenic Parameters.*

[Abstract:0317]

## INVESTIGATION OF ASPROSIN, GHRELIN, LEPTIN AND ADROPIN LEVELS BEFORE AND AFTER TREATMENT IN PRIMARY HYPOTHYROIDISM

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**Summary:** Thyroid hormones affect energy metabolism both centrally and peripherally. Asprosin, ghrelin, leptin and adropin are other hormones that have effect on energy metabolism. Hypothyroidism reduces patient survival by causing clinical pathologies such as metabolic syndrome, and dyslipidaemia. In our study, significant relationship was found between asprosin level and hypothyroidism.

**Purpose:** We aimed to show the relationship of asprosin and other adipokines with thyroid hormones and the effect of treatment on these markers. There is no study in humans to determine whether thyroid dysfunction is associated with adropin and the new biomarker asprosin.

**Methods:** We enrolled primary hypothyroidism patients at the endocrinology clinic of our hospital in 2021. Thyroid hormone replacement therapy was given to the patients. After the patients became euthyroid, they were called for control and blood samples were taken again. The study groups were determined as five groups: 1) overt primary hypothyroidism; 2) subclinical

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primary hypothyroidism; 3) control of healthy adults; 4) post-treatment overt hypothyroidism; 5) post-treatment subclinical hypothyroidism.

**Findings:** The study groups consisted of 64 patients with overt hypothyroidism, 58 patients with subclinical hypothyroidism, and 50 healthy people. Demographic, clinical and laboratory parameters of the groups at the time of admission are given in Table 1. The comparison of variables before and after treatment in overt hypothyroidism and subclinical hypothyroidism is examined in Table 2.

**Conclusions:** Asprosin levels in both overt and subclinical hypothyroidism patients were lower than in the control group, and asprosin levels increased after treatment. We think, oroxygenic asprosin may be reduced by a protective mechanism that will improve metabolic disorders in hypothyroidism.

*Keywords:* *hypothyroidism, adipokine, asprosin*

| Variables | Overt Hypothyroidism (mean±sd) | Subclinical Hypothyroidism (mean±sd) | Control (mean±sd) | p |
|---|---|---|---|---|
| Age | 48.6±15.8 | 44.2±15.3 | 46.4±16.3 | 0.269 |
| BMI | 31±6.2 | 27.8±17.9 | 30.3±6.6 | 0.028[1] |
| FG (mg/dL) | 99.0±25.0 | 100.0±34.6 | 99.9±25.4 | 0.974 |
| Fasting Insulin (mU/L) | 13.5±9.1 | 10.1±5.1 | 10.3±7.2 | 0.020[1] |
| Cholesterol (mg/dL) | 207.1±54.3 | 190.1±39.3 | 180.7±37.8 | 0.006[1] |
| LDL Cholesterol (mg/dL) | 127.0±46.3 | 112.9±30.8 | 104.3±29.8 | 0.004[1] |
| Triglyceride (mg/dL) | 181.5±128.2 | 138.3±77.8 | 112.4±57.9 | <0.001[1] |
| Ghrelin (pg/ml) | 347.1±147.0 | 2047.5±1563.5 | 2113.4±2568.7 | <0.001[2] |
| Leptin (ng/ml) | 19.8±15.3 | 12.6±9.5 | 12.8±10.2 | 0.002[2] |
| Asprosin (ng/ml) | 1.5±0.3 | 1.8±0.3 | 2.8±0.3 | <0.001[1] |
| Adropin (pg/ml) | 18801.6±2184.4 | 15790.5±3360.4 | 17166.2±3439.9 | <0.001[1] |

***Table 1.*** *Demographic, clinical and laboratory parameters of the groups at the time of admission.*

*[1]: Statistically significant difference is between all groups. [2]: Statistically significant difference is between group 1 and 2 and between group 1 and 3.*

| Variables | Before Treatment in Overt Hypothyroidism (mean±sd) | AfterTreatment in Overt Hypothyroidism (mean±sd)(mean±sd) | p | Before Treatment in Subclinical Hypothyroidism (mean±sd) | After Treatment in Subclinical Hypothyroidism (mean±sd) | p |
|---|---|---|---|---|---|---|
| BMI | 31.01 ± 6.27 | 30.39 ± 6.03 | 0.005* | 27.9 ± 6.33 | 27.26 ± 5.75 | <0.001* |
| FG (mg/dL) | 99.02 ± 25.02 | 97 ± 17.91 | 0.703 | 100.12 ± 34.61 | 91 ± 19.88 | 0.014* |
| Cholesterol (mg/dL) | 207.05 ± 54.36 | 179.83 ± 44.95 | <0.001* | 190.12 ± 39.29 | 181.08 ± 37.52 | <0.001* |
| LDL Cholesterol (mg/dL) | 121.05 ± 52.68 | 107.94 ± 33.8 | 0.022* | 112.92 ± 30.82 | 105.4 ± 31.1 | 0.004* |
| HDL Cholesterol (mg/dL) | 48.77 ± 15.69 | 47.97 ± 12.05 | 0.857 | 50.44 ± 14.9 | 51.1 ± 13.52 | 0.454 |
| Triglyceride (mg/dL) | 181.5 ± 128.28 | 135.93 ± 81.34 | <0.001* | 138.28 ± 77.8 | 122.98 ± 69.81 | 0.018* |
| Ghrelin (pg/ml) | 347.08 ± 147.03 | 667.25 ± 356.33 | <0.001* | 2047.49 ± 1563.5 | 2542.57 ± 1275.81 | 0.007* |
| Leptin (ng/ml) | 19.82 ± 15.34 | 11.29 ± 9.86 | <0.001* | 12.64 ± 9.85 | 12.61 ± 9.4 | 0.98 |
| Asprosin (ng/ml) | 1.54 ± 0.26 | 1.8 ± 0.16 | <0.001* | 1.84 ± 0.25 | 2.37 ± 0.43 | <0.001* |
| Adropin (pg/ml) | 18801.75 ± 2184.39 | 18346.77 ± 3041.65 | 0.188 | 15790.51 ± 3360.4 | 16107.84 ± 5123.9 | 0.593 |

***Table 2.*** *Comparison of variables before and after treatment in overt hypothyroidism and subclinical hypothyroidism.*

**: Statistically significant difference between the groups.*

[Abstract:0417]

# CHARACTERISTICS OF PATIENTS WITH HYPERCALCEMIA IN SPAIN (2001-2015): ANALYSIS BY GENDER

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**Purpose and Methods:** Retrospective observational study of hospitalizations in the Spanish National Health System between 2001-2015, through the analysis of the minimum basic data set (CMBD-H) from the Ministry of Health. Patients with hypercalcemia (ICD-9-CM code: 275.42) aged 15 years and older were selected.

**Findings:** Analysed 41,101 patients, with a male predominance (51.3%). Significant differences were found in many analyses. Males had a lower median age (67 vs. 71 years), higher proportion of at least one coded aetiology (79.8 vs. 66.8%), lower proportion of multiple coded etiologist (3.1 vs. 5%), and a higher intrahospital mortality rate (33.7 vs. 20%). In males, a higher proportion of neoplasm coding was observed (75.5 vs. 53.9%). In females, a higher proportion of coding for hyperparathyroidism (17 vs. 6.7%), thyrotoxicosis (2.6 vs. 0.8%), adrenal insufficiency (0.4 vs. 0.3%), and intoxication with vitamins A-D (0.5 vs. 0.1%), thiazide diuretics (6 vs. 1), and lithium was noted. In males, a higher proportion of coding was observed for lung neoplasms (36.4 vs. 6%), head and neck (7.7 vs. 2.1%), gastrointestinal tract (7.3 vs. 4.8%), bladder (5.9 vs. 2%), and kidney (5.2 vs. 3.8%). In females, a higher proportion of coding was noted for breast neoplasms (23 vs. 0.1%), multiple myeloma (22.9 vs. 16.1%), lymphoma (6.1 vs. 4.1%), genital (8 vs. 0.8%), endocrine (1.9 vs. 0.5%), and uncoded neoplasms (25.9 vs. 13.7%). The proportion of multiple coded neoplasms was higher in males (7 vs. 5.2%).

**Conclusions:** Significant differences exist in the characteristics of patients with hypercalcemia based on gender.

*Keywords:* *hypercalcemia, calcium metabolism disorders, paraneoplastic syndromes, hyperparathyroidism, routinely collected health data*

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[Abstract:0432]

# SERUM 25-HYDROXYVITAMIN D LEVEL IS POSITIVELY ASSOCIATED WITH VASCULAR REACTIVITY INDEX AND ENDOTHELIAL FUNCTION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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**Purpose:** Circulating 25-hydroxyvitamin D has an established role in modulating endothelial function. This study aimed to evaluate the relationship between serum 25-hydroxyvitamin D levels and endothelial function in patients with type 2 diabetes mellitus (T2DM).

**Methods:** Fasting blood samples were collected from 102 patients with T2DM. The endothelial function and vascular reactivity index (VRI) were measured using a digital thermal monitoring (DTM) test. The serum 25-hydroxyvitamin D concentrations were determined using commercially available enzyme-linked immunosorbent assays. In this study, VRI < 1.0 was used as the poor vascular reactivity, 1.0 ≤ VRI < 2.0 was used as the intermediate vascular reactivity, and VRI ≥ 2.0 was used as the good vascular reactivity.

**Findings:** Thirty patients (29.4%) were categorized as having poor vascular reactivity (VRI < 1.0), 39 patients (38.2%) were categorized as having intermediate vascular reactivity (1.0 ≤ VRI < 2.0), and 33 patients had good vascular reactivity. Higher serum fasting glucose, glycated hemoglobulin (HbA1C), and urinary albumin-to-creatinine ratio (UACR) were associated with, while a lower prevalence of hypertension, lower systolic blood pressure, diastolic blood pressure, and a lower serum 25-hydroxyvitamin D level with poor vascular reactivity. After multivariable forward stepwise linear regression analysis, it was noted that diastolic blood pressure ($p = 0.002$) and 25-hydroxyvitamin D level ($p < 0.001$) were significantly and independently associated with VRI values in T2DM patients.

**Conclusions:** Serum 25-hydroxyvitamin D levels are positively correlated with VRI values, and lower serum 25-hydroxyvitamin D levels correlate with endothelial dysfunction in patients with T2DM.

***Keywords:*** *25-hydroxyvitamin D, vascular reactivity index, type 2 diabetes mellitus*

[Abstract:0444]

# CHARACTERISTICS OF PATIENTS WITH HYPERCALCEMIA IN SPAIN (2001-2015): ANALYSIS BY AGE GROUPS

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**Purpose and Methods:** Retrospective observational study of hospitalizations in the Spanish National Health System between 2001-2015, through the analysis of the Minimum Basic Data Set (CMBD-H) from the Ministry of Health. Patients with hypercalcemia (ICD-9-CM code: 275.42) aged 15 years and older were selected.

**Findings:** Analysed 41,101 patients. Significant differences were found in many analyses. The 45 64 age group had a higher proportion of males, whereas the ≥65 age group had a higher proportion of females. Urgent admissions were more frequent in the ≥65 age group. The median length of stay and cost of admission increased progressively with age, and in hospital mortality was significantly higher in the 45 64 years and ≥65 years age groups. Regarding etiologist, neoplasms were more frequent in the 45 64 age group compared to the other groups. Neoplasms of the breast, genitals, lymphomas, hepatobiliary-pancreatic, and endocrine system were more frequent in the 15 44 age group. Those of the lung, head and neck, gastrointestinal tract, and kidney were more frequent in the 45 64 age group. Multiple myeloma and neoplasms of the bladder and prostate were more frequent in the ≥65 age group. Hyperparathyroidism, thyrotoxicosis, parenteral nutrition, sarcoidosis, adrenal insufficiency, and rhabdomyolysis were more frequent in the 15 44 age group. Intoxications with vitamins A D and thiazide diuretics were more frequent in the ≥65 age group. The 15 44 age group had a higher proportion of cases without a coded diagnosis related to the development of hypercalcemia.

**Conclusions:** Significant differences exist in the characteristics of patients with hypercalcemia based on age.

***Keywords:*** *hypercalcemia, calcium metabolism disorders, paraneoplastic syndromes, hyperparathyroidism, routinely collected health data*

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[Abstract:0445]

## THE ASSOCIATION BETWEEN THYROID FUNCTION AND METABOLIC ASSOCIATED FATTY LIVER DISEASE (MAFLD) IN NON-OBESE PATIENTS WITH METABOLIC SYNDROME

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**Summary:** Literature regarding the relationship between thyroid hormone variation and negative metabolic effects remains controversial.

**Purpose:** This retrospective study evaluates the relationship between thyroid hormone levels and presence of MAFLD in non-obese (Asia Pacific criteria BMI ≤ 24.9) adults.

**Methods:** A total of 393 patients (248 MAFLD, 145 non-MAFLD) from a Philippine tertiary hospital were enrolled between January 2021 and August 2023. Whole abdominal ultrasound, thyroid function, blood pressure and levels of triglycerides, cholesterol, and glucose were assessed. Individuals with moderate to high alcohol intake history, pregnancy, use of steroids, and central obesity were excluded. Ethical approval was obtained from the institutional ethics review board. Descriptive statistics, Pearson chi-square analysis and student t-tests via STATA 17.0 were used to analyse the data when appropriate.

**Findings:** The majority of patients were female (n=226, 57.51%). The mean age was 55.13±13.59 years. Individuals with MAFLD (n=248, 63.10%) did not differ significantly from their non-MAFLD counterparts in age, systolic blood pressure, diastolic blood pressure, HDL, and fasting plasma glucose. They did however have higher BMI (23.14±1.75 kg/m$^2$), higher triglycerides (TG) (172.91±65.22), higher TSH (8.258±26.09), and lower FT4 (2.47±4.39) than non-MAFLD patients (BMI 22.73±2.05 kg/m$^2$, TG 153.72±63.50, TSH 1.69±11.75, FT4 9.69±17.69) (p<0.02). Pearson chi 2 analysis supported this, with MAFLD patients having greater frequency of reported elevated cholesterol (p<0.01), elevated TSH (p<0.0001), and diminished FT4 (p<0.0001).

**Conclusions:** This study adds to the emerging literature focusing on the relationship of thyroid function on the presence of MAFLD.

***Keywords:*** *MAFLD, thyroid stimulating hormone, free tetra-iodothyronine*

[Abstract:0460]

## HYPOPITUITARISM CONFUSED WITH VERTIGINOUS SYNDROME

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**Introduction:** Hypopituitarism is a rare condition, characterized by partial or complete loss of a single or multiple pituitary hormones. It poses a diagnostic challenge due to its gradual onset and variable symptoms depending on the number and severity of hormone deficiencies. Management consists of pharmacotherapy, hormone replacement, surgery, and/or radiotherapy.

**Case Presentation:** We present a case of a 69-year-old woman, with a history of vertigo syndrome, frequent emergency department visits for dizziness, nausea, and asthenia over five years, previously attributed to vertigo exacerbations and treated with betahistine. In the last admission, she presented hypotension (63/37 mmHg) in addition to her typical symptoms. Initial analysis revealed decrease in thyrotropin (TSH) and thyroxine, further testing revealed deficiencies of corticotropin (ACTH), gonadotropins and growth hormone. Cerebral magnetic resonance imaging was performed and presented with no changes. The hormonal deficits were corrected with clinical improvement and rendering the patient asymptomatic within a week.

**Conclusions:** This case underscores the diagnostic challenge posed by hypopituitarism, emphasizing its rare occurrence and atypical presentation.

References:

Heidelbaugh JJ. Endocrinology Update: Hypopituitarism. FP Essent. 2016 Dec; 451:25-30. PMID: 27936532.

***Keywords:*** *hypopituitarism, thyrotropin, corticotropin*

[Abstract:0546]

## THREE BONE DISEASES IN THE SAME PATIENT. AN EXCEPTIONAL CASE

*De La Fuente Vázquez Mercedes[1], García Tellado Alex[1], Alija Piret Pablo[1], Solís Sánchez Pablo[1], Arroyo Olmedo Marina[2], Queipo Menéndez Javier[1], Castillo Leonet Adrián[1], Longarón Pueyo Judit[1], Puente Ruiz Nuria[1], González Bores Paula[1], Fernández Ayala Novo Marta[1], Olmos Martínez Jose Manuel[1]*

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A 56-year-old man began with pain and swelling in the pretibial region following a blow three months earlier. An MRI (figure 1) and a bone biopsy were performed, with histopathological findings compatible with monostotic Paget's disease (PD). He was treated

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with zoledronic acid with good clinical evolution. Three years later, the pain and swelling reappeared. Given the suspicion of tumour degeneration of PD, a new MRI (figure 2) was performed, and a new bone biopsy revealed a large cell lymphoma of bone with centroblastic morphology. He was treated with R-CHOP and a new dose of zoledronic acid, presenting complete tumour remission.

Two years after remission, elevated PTH was detected (184 pg/ml) with normal albumin-corrected calcium (9.8 mg/dL) and decreased vitamin D (14 mg/ml). This was interpreted as hyperparathyroidism secondary to vitamin D deficiency, so hydroferol was prescribed. At the next follow-up, despite normal vitamin D (20 ng/dL), PTH remained elevated (198 ng/dL), this time with hypercalcaemia (10.7 mg/dL), hypophosphataemia (1.9 mg/dL) and hypercalciuria (335.5 mg/24 hours). A diagnosis of primary hyperparathyroidism was made and a Mibi scan (figure 3) confirmed a right lower parathyroid adenoma which was surgically removed.

Sarcomatous degeneration is the most common primary bone neoplasm associated with PD. However, primary lymphoma involvement in pagetoid bone is unusual. The association between PD and primary hyperparathyroidism is very rare. In fact, etiologically there is no evidence that the two disorders are linked. The uniqueness of this case lies in coexistence of three bone diseases in the same patient.

*Keywords:* *bone lymphoma, Paget's disease, primary hyperparathyroidism*

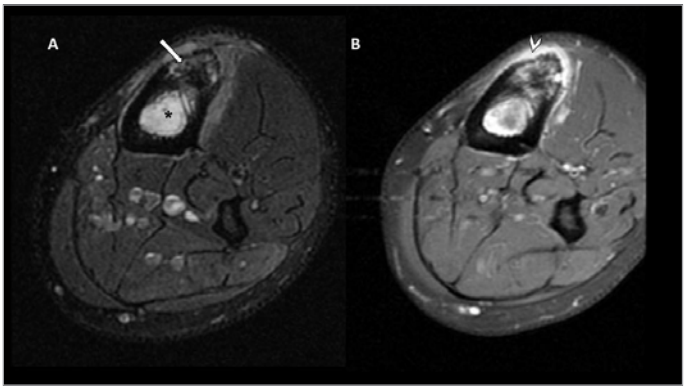


***Figure 1.*** *Paget's disease MRI.*

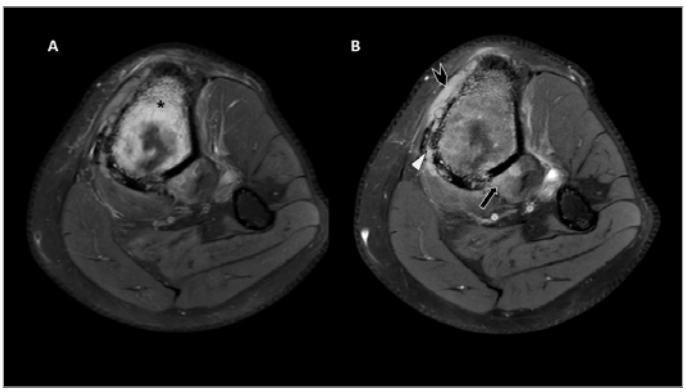


***Figure 2.*** *Bone lymphoma MRI.*

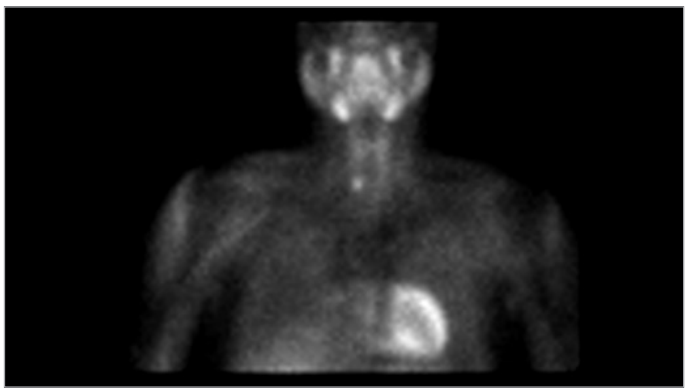

***Figure 3.*** *MIBI-Tc99m scan right lower parathyroid adenoma.*

[Abstract:0547]

## DESCRIPTIVE ANALYSIS OF SIADH IN A THIRD-LEVEL HOSPITAL IN NORTHERN SPAIN

*Javier Queipo Menéndez, Álex García Tellado, Adrián Castillo Leonet, Daymara Boucle Tirador, María Carlota Insua García, Isabel Iribarren Medrano, Mercedes De La Fuente Vázquez, Raúl Parra Fariñas, Patricia Marín Oliván, Cristina Abad Pérez, Alicia Aldea Abad, Elena Urízar Ursúa*

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This study aimed to examine the clinical, analytical characteristics, and one-year evolution of patients discharged with a diagnosis of Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH) in a third-level hospital in northern Spain. It was a descriptive, observational, retrospective, and single-centre study, encompassing data collected from December 2021 to January 2023 through the review of medical records.The results included the analysis of 91 patients diagnosed with SIADH, with an average age of 73.5 ± 14.8 years, and 55% of them were women. Comorbidities most frequently associated are described in Figure 1. Idiopathic cases accounted for 26.4%. Etiological causes of SIADH are depicted in Figure 2. The most common clinical presentation was asymptomatic in 37% of cases, followed by digestive symptoms and neurological manifestations. Treatments included water restriction, diuretics, hypertonic saline, and tolvaptan. Sodium correction was adequate in 84.3% of patients. The mortality rate was 35%, with 34% occurring during hospitalization and the remaining 66% within three months. Thirty-six percent of readmissions were due to new episodes of SIADH. The conclusions highlight a heterogeneous and multifactorial clinical profile in SIADH patients, emphasizing morbidity, a high frequency of readmissions, and hospital mortality. In light of these findings, we believe that a proper evaluation of SIADH could contribute to an improvement in clinical practice for these patients.

*Keywords:* *SIADH, prognosis, clinical profile*

 **DOI:** 10.12890/2024_V11Sup1

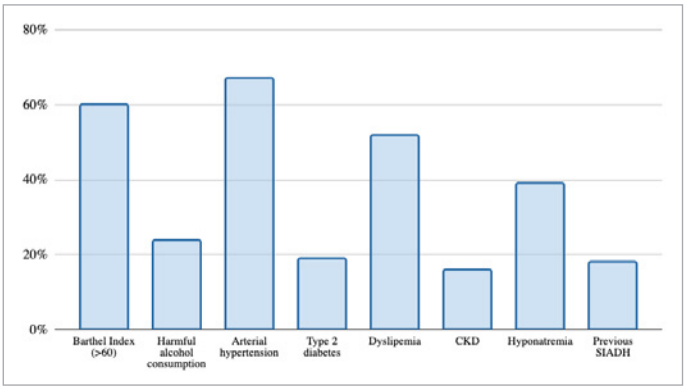


*Figure 1. Prevalence of comorbidities in patients admitted for SIADH.*

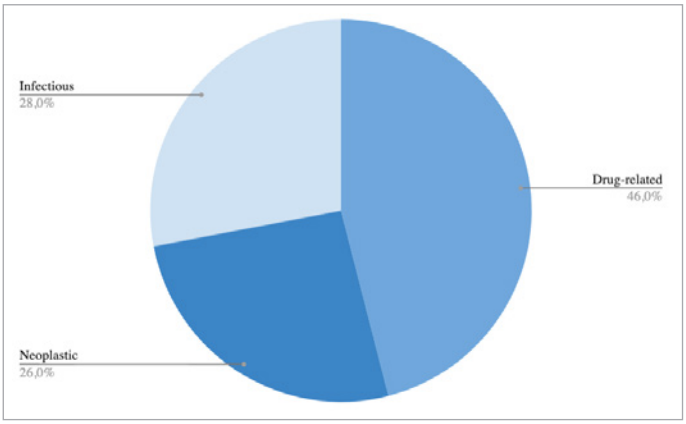


*Figure 2. Identifiable etiological causes of SIADH.*

[Abstract:0584]

## A CASE OF METASTATIC PARATHYROID CARCINOMA TREATED WITH SORAFENIB

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Parathyroid carcinoma is an extremely rare endocrine malignancy. The primary treatment of parathyroid carcinoma is surgery. However, there is no consensus for standard treatment for patients with metastatic parathyroid carcinoma. We report a case of successfully treated metastatic parathyroid carcinoma with sorafenib.

A 41-year-old male presented to the endocrinology clinic for thyroid nodules and hypercalcemia. The initial serum calcium level was 16.1 mg/dL and the parathyroid hormone level was 2045 pg/dL. There were two malignant-looking lymph nodes (LNs) in neck ultrasonography. He underwent initial surgery of parathyroid excision and modified radical neck dissection. During the follow-up, he underwent additional surgery, radiofrequency ablation, and external beam radiation therapy (65Gy) due to the recurrent metastatic lesions in the neck and persistent hypercalcemia. However, serum calcium levels continued to increase by 13mg/dL despite of repeated intravenous bisphosphonate therapy and the size of the metastatic LNs increased. We started anti-angiogenic tyrosine kinase inhibitor therapy with 400 mg of sorafenib twice a day. Total calcium level was decreased by 8.8 mg/dL after one month of sorafenib treatment. Follow-up imaging after 2 months showed a significant decrease in the size of metastatic LNs. We decided to discontinue sorafenib after 11 months of treatment. Serum calcium level and metastatic disease remained stable for 6 months after withdrawal of sorafenib treatment.

Metastatic parathyroid carcinoma poses a significant therapeutic challenge due to the lack of effective treatment. However, this case study suggested a potential therapeutic efficacy of sorafenib in patients with metastatic parathyroid carcinoma.

*Keywords: parathyroid neoplasms, sorafenib, hypercalcemia*

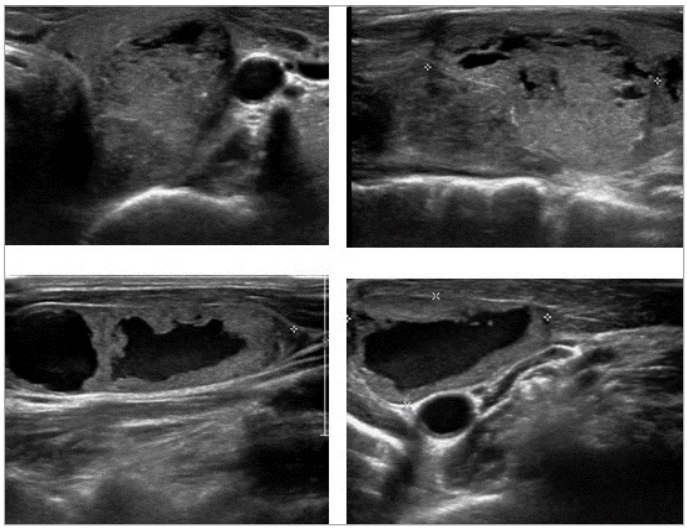

*Figure 1. Neck ultrasonography on first visit, showing thyroid nodules with suspicious malignant lymph nodes.*

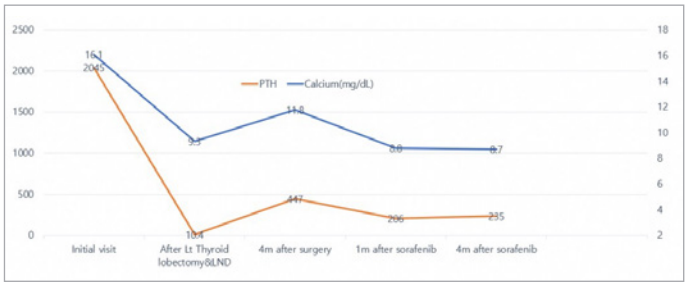


*Figure 2. Changes in calcium and PTH level during sorafenib treatment.*


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[Abstract:0587]

# BEYOND BLOOD SUGAR: NAVIGATING LIVER HEALTH WITH SODIUM GLUCOSE CO-TRANSPORTER 2 INHIBITORS OR THIAZOLIDINEDIONES IN TYPE 2 DIABETES MELLITUS WITH NON-ALCOHOLIC FATTY LIVER DISEASE

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**Background:** This study aims to assess the impact of sodium glucose co-transporter 2 inhibitors (SGLT2Is) or thiazolidinediones on liver dysfunction with respect to the Non-Alcoholic Fatty Liver Disease (NAFLD). The effects of pioglitazones on NAFLD is well known but this effects with SGLT2i isn't studied sufficiently.

**Methods:** This retrospective study evaluated 149 type 2 diabetic patients treated with either metformin and pioglitazone (n=74) or metformin and empagliflozin (n=75) between January 2021–January 2022. Patients with chronic renal failure, using another oral antidiabetics and haematological disorders that affect glycated haemoglobin (HbA1c) were excluded. Patients age, gender, diabetic duration, HbA1c, radiological findings and FIB-4 levels were recorded from the electronic database. Imaging findings in 78 NAFLD patients revealed density changes, while 71 showed no evidence favouring NAFLD.

**Results:** Of these 149 patients, 58.33% were female, and they aged between 20-85 years (53.7±10.5). All of the parameters such as: age, gender, diabetes duration and that we evaluated were disturbed homogeneously among patient cohorts. Detailed version of the data shown in Table 1.

The examinations of the patients indicated a statistically significant decrease in HbA1c levels between the two groups during the 6$^{th}$ months follow-up assessment (Table 2).

Upon comparison of the Fib-4 scores at 6 month between the treatment groups, a notable reduction was evident in both the empagliflozin and pioglitazone groups (Table 3).

In conclusion, empagliflozin treatment may be a better option in the treatment of NAFLD, especially in elderly patient groups when we have to be cautious pioglitazone due to chronic heart failure and osteoporosis risk.

*Keywords: fibrosis-4 index, diabetes mellitus, non-alcoholic fatty liver disease, hepatosteatosis, sodium glucose cotransporter 2 inhibitor, thiazolidinediones*

| Variables | | Pioglitazone& Metformin (n:74) | Empagliflozin& Metformin (n:75) | p |
|---|---|---|---|---|
| Age | Mean±sd<br>min-max | 53,85 ± 10,72<br>20-83 | 53,62±10,40<br>34-85 | 0,897 |
| Gender | Female, n (%)<br>Male, n (%) | 43,00 58%<br>31,00 42% | 44,00 59%<br>31,00 41% | 0,945 |
| Diabetes duration (Monts) | Mean±sd | 29,05±26,09 | 23,34±26,86 | 0,119 |
| Imaging | Non-NAFLD, n (%)<br>NAFLD, n (%) | 33,00 46%<br>41,00 54% | 38,00 51%<br>37,00 49% | 0,458<br>0,561 |
| HbA1c | Before treatment, mean±sd<br>6th month, mean±sd | 8,06±1,53<br>7,68±1,49 | 8,33±1,81<br>7,57±1,34 | 0,615<br>0,531 |
| FIB-4 Levels | Before treatment, mean±sd<br>6th month, mean±sd | 0,89±0,57<br>0,76±0,38 | 0,95±0,62<br>0,86±0,42 | 0,052<br>0,835 |

*Table 1. Distribution of patients among patient groups according to age, gender, diabetes duration, imaging findings, Hba1c levels and Fib-4 scores.*

| HbA1c | Pioglitazone& Metformin | Empagliflozin& Metformin | p |
|---|---|---|---|
| | Mean±sd | Mean±sd | |
| **NON-NAFLD** | | | |
| *Before treatment* | 8,06 ± 1,75 | 8,11 ± 1,81 | 0,502 |
| *6th month* | 7,68 ± 1,63 | 7,61 ± 1,43 | 0,627 |
| ΔHbA1c | 0,590 | 0,072 | |
| **NAFLD** | | | |
| *Before treatment* | 8,13 ± 1,37 | 8,54 ± 1,83 | 0,615 |
| *6th month* | 7,59 ± 1,39 | 7,55 ± 1,27 | 0,531 |
| ΔHbA1c | ***0,007*** | ***0,000*** | |

*Table 2. HbA1c levels between patient groups before and after treatment.*

| FIB-4 | Pioglitazone& Metformin | Empagliflozin& Metformin | p |
|---|---|---|---|
| | Mean±sd | Mean±sd | |
| **NON-NAFLD** | | | |
| *Before treatment* | 0,97 ± 0,76 | 1,00 ± 0,75 | 0,402 |
| *6th month* | 0,74 ± 0,43 | 0,86 ± 0,38 | 0,835 |
| ΔFİB-4 | ***0,017*** | ***0,018*** | |
| **NAFLD** | | | |
| *Before treatment* | 0,83 ± 0,37 | 0,92 ± 0,48 | 0,132 |
| *6th month* | 0,79 ± 0,36 | 0,86 ± 0,48 | 0,107 |
| ΔFİB-4 | ***0,040*** | ***0,010*** | |
| **TOTAL** | | | |
| *Before treatment* | 0,89 ± 0,58 | 0,96 ± 0,62 | 0,150 |
| *6th month* | 0,77 ± 0,39 | 0,86 ± 0,43 | 0,835 |
| ΔFİB-4 | ***0,000*** | ***0,034*** | |

*Table 3. Statistical comparison of the FIB-4 score between treatment and imaging findings cohorts.*



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[Abstract:0591]

# A PARATHYROID CARCINOMA CASE PRESENTED WITH MYALGIA AND HYPERCALCEMIA

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**Introduction:** Parathyroid carcinoma is one of the rare causes of primary hyperparathyroidism. It is manifested by neck mass, evident hypercalcemia and very high parathormone (PTH) levels. In this report, a case of parathyroid carcinoma, who admitted with myalgia is presented.

**Case Presentation:** A 53-year old male patient with no known history of chronic diseases referred to the outpatient clinic with extensive body pain and high calcium level (Ca: 14.2 mg/dL) and very high level of PTH (PTH: 2007 pg/ml), Because hypercalcemia was unresponsive to hydration and force diuresis, he received denosumab. which was resulted with gradual decrease of serum calcium levels to normal range. He had a 6x4 cm neck mass in the right lobe of the thyroid gland, with nodular and hypervascular solid components suggesting parathyroid carcinoma. The patient underwent to excisional surgery which helped to confirm the diagnosis (Figure 1 and 2). In the postoperative examination, PTH and calcium levels were within normal limits.

**Conclusions:** Although a significant majority of parathyroid lesions are parathyroid adenoma, parathyroid carcinoma, one of the rarest causes of primary hyperparathyroidism, is a preliminary diagnosis to be kept in mind, especially at very high PTH value accompanying hypercalcemia and in cases with palpable parathyroid gland. Although there is no significant palpable parathyroid lesion in this case, parathyroid carcinoma should be considered in the differential diagnosis of patients with extremely high PTH level and characteristic radiologic appearance of neck mass. Surgical excision is essential diagnostic and therapeutic approach.

***Keywords:*** *Hypercalcemia, hyperparathyroidism, parathyroid carcinoma, myalgia*

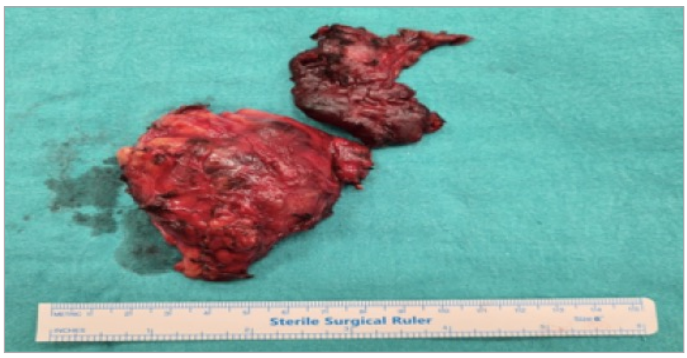


***Figure 1.*** *Gross appearance of parathyroid carcinoma.*

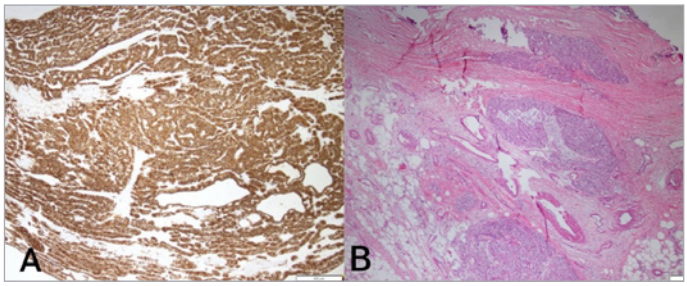


***Figure 2.*** *Parathyroid carcinoma cells are positive with PTH stain (A). Parathyroid carcinoma with vascular invasion (B).*

[Abstract:0601]

# MACROPROLACTINEMIA IN COVID-19 ERA: SHOULD CLINICIANS PAY MORE ATTENTION?

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**Background and Aims:** Macroprolactin is a big and often clinically ineffective form of monomeric prolactin (PRL) complexed with various immunoglobulins. If macroprolactinemia is not properly recognized, patients may have needless pituitary imaging and dopamine agonist medication. During the COVID-19 period, there has been an increase in immunoglobulin levels in patients due to both COVID-19 vaccines and infections. Therefore, there may have been an increase in the frequency of macroprolactinemia. Our aim is to determine the frequency of macroprolactinemia and to find out whether there is an increase in the frequency of macroprolactinemia during the COVID-19 period.

**Methods:** This retrospective study was conducted between 2018 and 2022 and included 164 patients whose macroprolactin levels were analysed to investigate the aetiology of hyperprolactinemia. Patients groups were divided according to their admission time; non-COVID-19 period in 2018-2019 (group 1) and COVID-19 pandemic period in 2021-2022 (group 2).

**Results:** Serum PRL levels, polyethylene glycol (PEG)-precipitated PRL, and macroprolactin were higher in group 2 ($p = 0.01$, $p = 0.01$, and $p = 0.03$ respectively) (Table 1). When we separated the

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patients in group 2 according to their COVID-19 infection status, PRL and PEG-precipitated PRL levels were similar in both groups (Table 2). Although macroprolactin was higher in patients with COVID-19 infection, no statistically significant difference was found (35.6% vs 40.4%).

**Conclusions:** In our study, we found an increase in the frequency of macroprolactinemia during the COVID-19 period. Therefore, clinicians may consider macroprolactinemia more frequently in the aetiology of hyperprolactinemia.

*Keywords:* *macroprolactinemia, prolactin, COVID-19*

| | Group 1 | Group 2 | p |
|---|---|---|---|
| Age (years), median (IQR) | 29 (18) | 33 (17) | 0.48 |
| Sex (female), n (%) | 49 (92.5%) | 104 (93.7%) | 0.77 |
| PRL (ng/mL), median (IQR) | 66.4 (49.3) | 81.6 (36.6) | 0.01 |
| PEG-precipitated PRL (ng/mL), median (IQR) | 24.6 (25.1) | 35.3 (46.6) | 0.01 |
| Macroprolactin, n (%) | 11 (20.8%) | 42 (37.8%) | 0.03 |

***Table 1.*** *Comparison of patients according to groups. Group 1: Patients were examined before COVID-19 pandemic Group 2: Patients were examined during COVID-19 pandemic.*

| | COVID-19 (-) (n = 59) | COVID-19 (+) (n = 52) | p |
|---|---|---|---|
| Age (years), median (IQR) | 33 (18) | 33.5 (17.8) | 0.48 |
| Sex (female), n (%) | 56 (94.9%) | 48 (92.3%) | 0.70 |
| PRL (ng/mL), median (IQR) | 88.6 (50.4) | 79.5 (32.7) | 0.15 |
| PEG-precipitated PRL (ng/mL), median (IQR) | 37.3 (48.5) | 33 (47.8) | 0.81 |
| Macroprolactinemia, n (%) | 21 (35.6%) | 21 (40.4%) | 0.60 |

***Table 2.*** *Comparison of patients according to COVID-19 status.*

[Abstract:0630]

## BETWEEN SWALLOWING AND NUTRITION: CHALLENGE OF REFEEDING SYNDROME IN A PATIENT WITH ZENKER'S DIVERTICULUM, A CASE REPORT

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We present a case of an 82-year-old male, with poor medical adherence, who was admitted to Internal Medicine Department with a diagnosis of respiratory infection and constitutional syndrome under study. Initially, some complementary tests were carried out in search of a possible tumoral cause as the main diagnosis, without findings of interest. Considering dysphagia, an upper gastrointestinal endoscopy was performed finding a large Zenker's diverticulum (5.5 cm), which required a per-oral endoscopic myotomy to be performed on the patient, with residual fundus. Nevertheless, the patient was at high risk for refeeding syndrome (chronic alcoholism, BMI 16.5 kg/m$^2$, low intake in previous months, marked weight loss, etc.), thus it was decided to start energy intake at a slower rate by parenteral route. However, the patient evolved poorly (developed tachycardia, became more oedematous, etc.) and presented severe ionic alterations in the analytical controls (especially moderate hypophosphatemia and severe hypomagnesaemia). Therefore, fluid therapy was started with the pertinent ionic supplementation and the nutritional rhythm was reduced, besides adding vitamin complexes, and carrying out close control by means of monitoring. Notwithstanding, the patient developed numerous subsequent complications (candidemia, hepatotoxicity after echinocandin treatment, diarrhoeal syndrome, new respiratory infection, etc.) that finally led to death.

*Keywords:* *refeeding, Zenker, diverticulum*

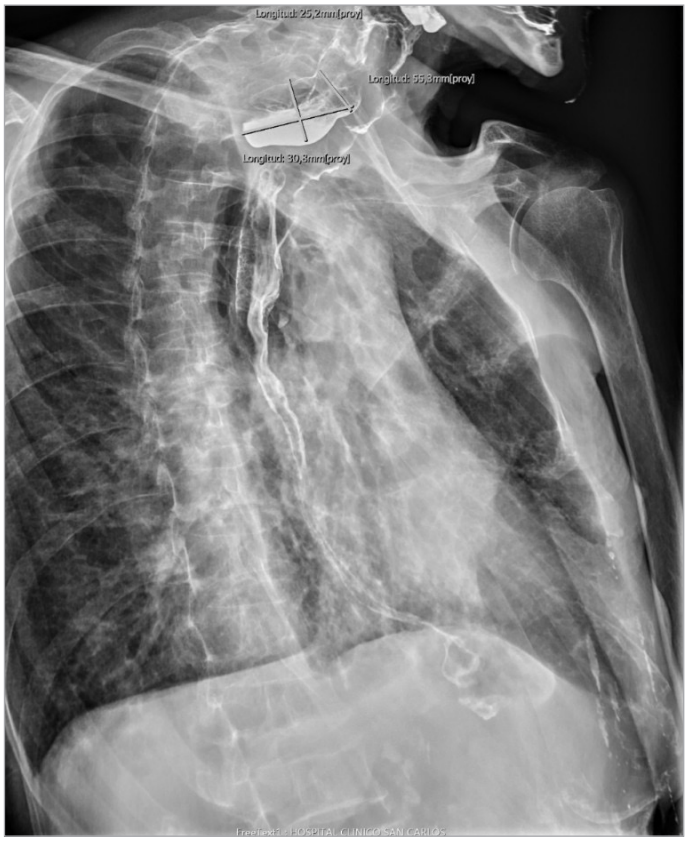


***Figure 1.*** *Oesophagogastric transit study with oral gastrografin. At the level of the upper oesophageal sphincter a large Zenker's diverticulum with an anteroposterior length of 55mm, craniocaudal length of 3cm and transverse length of 43mm can be seen.*


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[Abstract:0649]

# LIFESTYLE MODIFICATION IN ELDERLY POPULATION WITH METABOLICALLY HEALTHY AND UNHEALTHY OVERWEIGHT/ OBESITY IMPROVES MITOCHONDRIAL DYNAMICS AND INFLAMMATORY PROFILE

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**Summary:** Obesity is related with mitochondrial dysfunction[1] and inflammation. The excessive body fat implies a risk to health lead to metabolic disorders (metabolically unhealthy obesity-MUHO), although is possible a high resistance to develop these alterations (Metabolically Healthy Obesity, MHO).

**Purpose:** To analyse the effect on mitochondrial dynamics and inflammation of a lifestyle modification based on Mediterranean diet (MedDiet) and regular physical activity (PA) for 12 months in an elderly population (65-87 years) with overweight/obesity (MHOe and MUHOe).

**Methods:** One hundred and sixteen MHOe and thirty-two MUHOe were studied. Demographic, anthropometric and lifestyle parameters were annotated before and after the intervention. Blood samples were collected to analyse the inflammatory profile (by Enzyme-Linked ImmunoSorbent Assay) and mitochondrial dynamics effects (by Western Blot and qPCR assays).

**Findings:** After 12 months of lifestyle modification, differences in anthropometric, clinical parameters and MedDiet adherence respect baseline conditions were found in both groups, MHOe and MUHOe. Moreover, we found an improvement of mitochondrial dynamics (fusion: Mfn2 and Opa1; biogenesis: TFAM; mitophagy: PINK1; and respiratory chain proteins: Cox IV). On the other hand, the levels of IL6 and CRP decreased in both groups. However, the levels of TNFa increased at 12 months due to the decrease in physical activity.

**Conclusions:** The modification of the healthy lifestyle with weight loss, manages to improve the inflammatory profile and the functionality of the mitochondria, both in the MHO and MUHO elderly population, thus reducing all the possible cardiometabolic risks derived.

***Keywords:*** *obesity, lifestyle, mitochondria, inflammation*

[Abstract:0679]

# DIFFERENCES BETWEEN PATIENTS AGED OVER AND UNDER 80 YEARS ASSESSED FOR WEIGHT LOSS IN A TERTIARY REFERRAL HOSPITAL INTERNAL MEDICINE DEPARTMENT

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**Summary:** This study examines factors associated with individuals over 80 years and compares diagnoses of weight loss across a cohort of 130 patients. Cognitive impairment, anorexia, and anaemia were prevalent in the over-80s. The diagnostic of weight loss remains uncertain, suggesting a potential association with neoplastic conditions in this age group that requires further investigation.

**Purpose:** This study aims to identify clinical and analytical variables significantly associated with over 80 years individuals and to compare the final cause of weight loss with those under 80 years old.

**Methods:** A retrospective observational study was conducted in a Department of Internal Medicine between 2017-2022, using the codes "ICD-10R63.4," "weight loss," and "constitutional syndrome" to identify cases. SPSS® was employed for data analysis: Mann-Whitney U statistic for non-parametric variable comparisons and Chi-squared test for qualitative variables.

**Findings:** 130 patients were included, 41 aged over 80 and 89 under 80. Out of these, 106 were outpatients, while the majority admitted to the hospital were over 80. Weight loss aetiology was undetermined for most patients. Although not statistically significant, those over 80 years showed more neoplasia whereas under-80 individuals exhibited more digestive and psychiatric pathologies.

**Conclusions:** - Cognitive impairment, anorexia and anaemia are associated with age over 80.

- Patients over 80 are more likely to be hospitalised for weight loss study than those under 80 years.

- The final diagnosis remains uncertain for most patients. However, neoplasia is more common in the over-80s.

- Further research with larger number of patients should be conducted.

***Keywords:*** *weight loss, over 80 years, ambulatory, neoplasia*

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| | Over-80 years (N=41) | Under-80 years (N=89) | p |
|---|---|---|---|
| Age | 84 (3.056) | 62 (18.648) | |
| Lost kilograms | 9.5 (5.406) | 9 (7.252) | 0.72 |
| Months before consulting a physician | 10 (10.785) | 6 (5.394) | 0.17 |
| Admitted to the hospital | 12 (29.3%) | 12 (13.5%) | 0.031 |
| Outpatient basis | 29 (70.7%) | 77 (86.5%) | 0.031 |
| Cognitive impairment | 5 (12.2%) | 1 (1.1%) | 0.005 |
| Feeding difficulty | 5 (12.2%) | 5 (5.6%) | 0.191 |
| Depression | 12 (29.3%) | 33 (37.1%) | 0.384 |
| Hospital admission in the previous 6 months | 3 (7.3%) | 15 (16.9%) | 0.156 |
| Fever | 1 (2.4%) | 2 (2.2%) | 0.946 |
| Anorexia | 25 (61%) | 37 (41.6%) | 0.04 |
| Asthenia | 22 (53.7%) | 40 (44.9%) | 0.355 |
| Night sweating | 2 (4.9%) | 10 (11.2%) | 0.245 |
| Abnormal physical examination | 4 (9.8%) | 19 (21.3%) | 0.108 |
| HIV+ | 0 (0%) | 0 (0%) | 0.972 |
| Anaemia | 12 (29.3%) | 10 (11.2%) | 0.011 |
| Altered thyroid hormone profile | 9 (22%) | 9 (10.1%) | 0.07 |
| Inflammatory marker elevation | 8 (19.5%) | 9 (10.1%) | 0.239 |
| Faecal occult blood | 4 (9.8%) | 2 (2.2%) | 0.058 |
| Elevated Liver Enzymes | 0 (0%) | 6 (6.7%) | 0.083 |
| No final diagnosis | 23 (56%) | 39 (43.8%) | 0.35 |
| Neoplasia | 7 (17.1%) | 8 (9%) | 0.35 |
| Endocrine | 2 (4.9%) | 3 (3.4%) | 0.35 |
| Mood disorders | 1 (2.4%) | 9 (10.1%) | 0.35 |
| Digestive pathology | 4 (9.8%) | 16 (18%) | 0.35 |
| Autoimmune pathology | 0 (0%) | 2 (2.2%) | 0.35 |
| Infectious diseases | 0 (0.0%) | 2 (2.2%) | 0.35 |
| Other | 4 (9.8%) | 10 (11.2%) | 0.35 |

***Table 1.*** *Clinical-analytical characteristics and etiological diagnosis of weight loss in the over-80 and under-80 age groups.*

[Abstract:0683]

## CUTANEOUS CLUES OF MEN1: UNRAVELLING A SILENT DIAGNOSIS THROUGH INSULINOMA

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**Background:** Multiple endocrine neoplasia type-1 (MEN1) is a rare syndrome, mainly marked by primary hyperparathyroidism, enteropancreatic neuroendocrine tumours (NETs), and pituitary adenomas. A thorough examination for cutaneous manifestations of MEN1 could be key for early diagnosis in patients presenting with these tumours.

**Case Presentation:** A 41-year-old male with a history of resected pancreatic insulinoma at the age of 27 was admitted with a 5-month-history of abdominal pain and distention. He was diagnosed with MEN1 at the age of 36, only after the diagnosis of his sister; however, he had missed medical follow-ups since then. Although he did not report symptomatic hypoglycaemia or weight change, assessments during his admission revealed hyperinsulinemic hypoglycaemia, along with a pituitary non-functioning microadenoma, and cutaneous lesions including angiofibromas and collagenomas. Abdominal CT detected a large inoperable mass measuring 123x98 mm in the left adrenal lodge, invading the tail of the pancreas and surrounding the major vessels, and an additional hypervascular lesion in the pancreatic uncinate process. The biopsy of the large mass indicated a poorly differentiated NET, without insulin immunostaining. Systemic chemotherapy was initiated.

**Conclusions:** Insulinoma is a rather rare initial manifestation of MEN1, representing nearly 10% of the cases. Upon insulinoma diagnosis, other symptoms and signs of MEN1 should carefully be evaluated, as the cutaneous manifestations may have led to an earlier diagnosis of MEN1 in our patient. NETs in MEN1 require regular monitoring due to their malignant potential. The loss of follow-ups, as illustrated in our case, may complicate with late-stage inoperable neoplasms.

***Keywords:*** *MEN1, relapse, collagenoma*

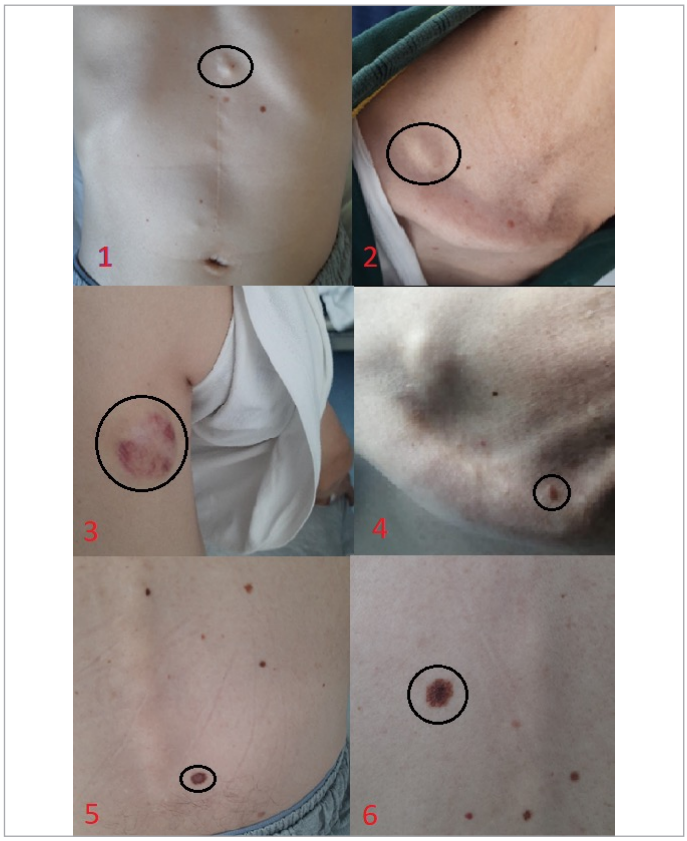


***Figure 1.*** *Cutaneous Lesions.*
*1, 2- Firm, well-demarcated subcutaneous nodules resembling collagenoma, on the abdomen and right supraclavicular region 3- Firm, well-demarcated subcutaneous nodule with ecchymosis, in 3 cm width, resembling collagenoma or non-involuting hemangioma 4- Orangish telengiectasia-bearing papule, resembling angiofibroma, on the right clavicular region 5- Brown papule with an eccentric hypopigmented area on the presacral region 6- Brown papule with centrally located homogenous black pigmentation on the left scapula.*

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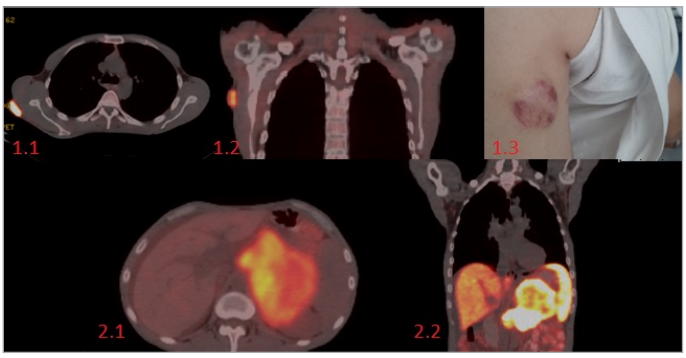


***Figure 2.*** *Images of the metastatic lesions.*
*1.1, 1.2 and 1.3- Images of Ga-68 DOTATATE, FDG PET-CT and the lesion itself, respectively, of subcutaneus nodule on the right scapula 2.1 and 2.2- Images of FDG PET-CT and intense Ga-68 DOTATATE uptake of the massive lesion stemming from the left adrenal gland.*

[Abstract:0692]

## PANCREATIC NEUROENDOCRINE TUMOUR PRESENTING WITH RECURRENT CONFUSION AND RECENT POSTERIOR CIRCULATION STROKE

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**Case Presentation:** 83-year-old lady presented to emergency department with intermittent confusion. Detailed history revealed that she had a background of recent posterior circulation ischemic stroke 3 weeks prior. She was then referred from her rehabilitation centre to us for episodic unresponsiveness with associated low capillary glucose, improving with intravenous dextrose. Prior to her stroke, she had episodes of intermittent dizziness, usually mid-morning, which resolved with snacks. Past medical history was unremarkable apart from previously treated meningioma, and recent ischemic stroke. No h/o alcohol consumption. No history similar problems in her family.

Capillary glucose monitoring showed intermittent hypoglycaemia during her stay, confirmed with venous glucose. She fulfilled Whipple's triad, warranting further tests. Routine biochemistry, liver and renal function were normal. Sulfonylurea screen was negative. Plasma C-peptide levels were significantly raised, with low paired plasma glucose.

CT abdomen showed a cystic lesion in the uncinate process of the pancreas. Octreotide scan confirmed the diagnosis of an insulinoma at the same site. Looking back, it was likely recent stroke was precipitated by a severe hypoglycaemia episode, given preceding symptoms.

Ideally, surgical resection is the mainstay of treatment. However, given her age, and frailty post-stroke, the multi-disciplinary team meeting, and patient, favoured conservative medical management. She was commenced on long-acting somatostatin analogue and provided a continuous glucose monitoring sensor.

**Conclusions:** Insulinomas are a rare but important cause of hypoglycaemia, that can cause significant mortality and morbidity if left undiagnosed. Though surgical management is the treatment of choice, a tailored approach is also required.

***Keywords:*** *insulinoma, pancreatic neuroendocrine tumour, recurrent hypoglycaemia*

[Abstract:0704]

## CARDIOVASCULAR RISK, DYSLIPIDEMIAS, AND STATIN TREATMENT IN A POPULATION OF MORBIDLY OBESE INDIVIDUALS

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**Introduction:** Obesity is associated with an elevated cardiovascular risk (CVR), needing therapeutic and preventive measures. The aim of this study is to evaluate cardiovascular risk in a population of morbidly obese individuals and assess the appropriate indication of statins.

**Methods:** A cross-sectional, descriptive, observational study was conducted with the morbidly obese population from the Obesity and Bariatric Surgery Program (OBSP) at Hospital Maciel, from November 2014 to March 2020. CVR was assessed using the calculator from the Pan American Health Organization. Statin indication was considered based on CVR or dyslipidaemia diagnosis.

**Results:** A total of 478 patients were analysed, with 84.3% being women. The median age was 44 years, and the median BMI was 50 kg/m$^2$. Low CVR was calculated for 57% of patients, while 37% had high or very high CVR. The prevalence of dyslipidaemias was 84.3%, with hypercholesterolemia (33.7%) and atherogenic dyslipidaemia (19.5%) being predominant. 60.6% (290) of patients had an indication for statin treatment, but only 38.9% (113) received it. Only 38.1% (43) achieved therapeutic goals.

**Conclusions:** Obesity presents multiple comorbidities that increase CVR, yet it is underestimated by risk calculators. There is evidence of pharmacological undertreatment in these patients, failing to achieve the proposed therapeutic goals.

References

1. Mostaza JM et al. Estándares SEA 2022 para el control global del Riesgo Cardiovascular. Clínica e Investigación en Arteriosclerosis. 2022;34(3):130–79.
2.Visseren F, et al. Guía ESC 2021 sobre la prevención de la enfermedad cardiovascular en la Práctica Clínica. Revista Española de Cardiología. 2022;75(5)

***Keywords:*** *cardiovascular risk, dyslipidaemia, statins*

 **DOI:** 10.12890/2024_V11Sup1

[Abstract:0720]

# A CASE OF ADRENAL INSUFFICIENCY ASSOCIATED WITH ACUTE CYTOMEGALOVIRUS INFECTION DEVELOPING ON THE BASIS OF ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS)

*Yagmur Ege Suv*[1]

[1] ⚠ The author did not provide affiliations upon requests from the event organizer

Acquired immunodeficiency syndrome is caused by direct, opportunistic infections, including HPA (hypothalamus-pituitary-adrenal) axis, modulation of host immune activity and modification of cellular pathways through virus proteins, and highly active antiretroviral therapies (HAART). The side effects of other treatment components affect the treatment as little as possible.

A 43-year-old male patient was admitted to the emergency room with complaints of fatigue, abdominal pain, severe weight loss and jaundice. According to liver section tests, cholestasis enzymes were significantly high and total bilirubin was 12.35 (0.3-1.2 mg/dl). Splenomegaly and hepatosteatosis were detected in abdominal ultrasonography. In the patient whose autoimmune and viral hepatitis serology was found to be negative, HIV RNA PCR was positive (440.294 copies/ml) and antiretroviral treatment was started. Endoscopy performed due to difficulty in swallowing revealed ophthalmic oedema and hyperaemia. CMV DNA PCR, which was sent with the preliminary diagnosis of cytomegalovirus (CMV) dysophagitis and hepatitis, was found to be positive (1382 copies/ml (log 10:4.14) and ganciclovir treatment was started. In the clinical course, hypotension, hyponatremia: Na 120 (136-145 mmol/l), hyperkalaemia: K 5.8 (3.5-5.1 mmol) was observed in the patient, and ACTH: 130 (0-45 pg/ml), morning cortisol was found to be 7 (5-23 mcg/dl) and adrenal insufficiency was suspected. Intravenous methylprednisolone treatment was started with the diagnosis of adrenal insufficiency secondary to CMV infection. No pathological findings were detected in the adrenal glands in abdominal magnetic resonance (MR) imaging. After corticosteroid treatment, the patient's complaints regressed and electrolyte values returned to normal, and he was discharged with 30 mg/day hydrocortisone treatment.

*Keywords:* *adrenal insufficiency, CMV, AIDS*

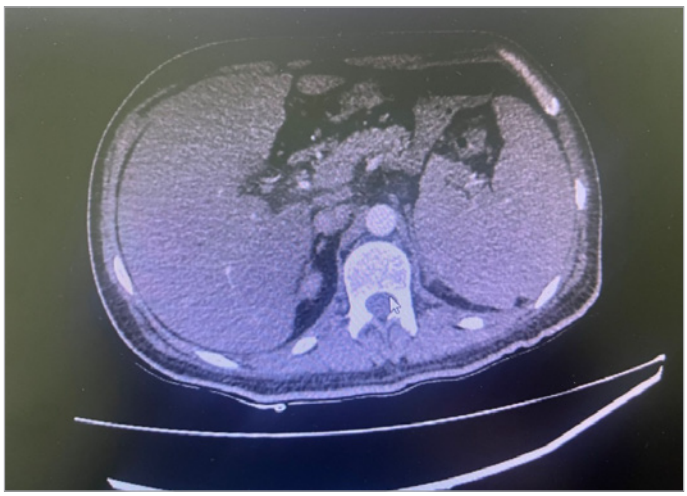

***Figure 1.*** *Abdominal CT 22/07/2022.*
*No pathological findings were detected in the adrenal glands in abdominal magnetic resonance (MR) imagine.*


***Figure 2.*** *Hyponatremia detected.*
*Hyponatremia: (136-145 mmol/l) AND Hyperkalaemia: K 5.8 (3.5-5.1mmol) was observed in the patient, and during the treatment it regressed.*


***Figure 3.*** *Morning cortizol.*
*Morning cortisol was found to be 7 (5-23 mcg/dl) and adrenal insufficiency was suspected and during treatment it became normal.*



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[Abstract:0763]

## A METABOLIC COMPLICATION TO CONSIDER IN COVID-19 PATIENTS UNDER TREATMENT WITH SGLT-2 INHIBITORS

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We present the case of a 43-year-old male with a history of hypertension and type 2 diabetes under treatment with metformin, dapagliflozin, and dulaglutide. He came to the emergency room with an 8-day history of fever, cough, and general malaise, along with anosmia and ageusia. In the preceding days, he had experienced progressive dyspnoea, polydipsia, polyuria, and anorexia. On arrival, he had a heart rate of 138 beats per minute, oxygen saturation at 92% at baseline, normal blood pressure, afebrile, and 25 respirations per minute. Chest X-ray revealed a retrocardiac consolidation with air bronchogram, and a polymerase chain reaction (PCR) test on a nasopharyngeal swab for SARS-CoV-2 was positive. Analytically, he had elevated C-reactive protein (233 mg/L) and procalcitonin (0.42 ng/mL), with a blood glucose level of 179 mg/dL. Additionally, he presented with metabolic acidosis (pH 7.09, bicarbonate 7 mmol/L) and ketonuria exceeding 150 mg/dL. He was hospitalized with a diagnosis of COVID-19 pneumonia with bacterial superinfection and probable euglycemic diabetic ketoacidosis. With intravenous insulin infusion, the patient showed improvement in the following days. Upon discharge, dapagliflozin was discontinued.Euglycemic diabetic ketoacidosis is a metabolic acidosis characterized by elevated ketone bodies and normal or slightly elevated blood glucose levels. It is a rare and underdiagnosed complication that can occur in patients treated with SGLT2 inhibitors. Precipitating factors often include dehydration, fasting, surgery, and infections. The treatment is the same as hyperglycaemic diabetic ketoacidosis, but intravenous insulin is supplemented with glucose solution.

***Keywords:*** *SGLT-2 inhibitors, diabetes, euglycemic diabetic ketoacidosis, COVID-19*

[Abstract:0769]

## SERUM INDOXYL SULFATE AS A POTENTIAL BIOMARKER OF AORTIC STIFFNESS IN PERSONS WITH TYPE 2 DIABETES MELLITUS

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**Purpose:** Indoxyl sulphate (IS), a uremic toxin derived from tryptophan, which plays crucial roles in oxidative stress, inflammation, and atherosclerosis. The present study aimed to evaluate the relationship between serum total IS levels and aortic stiffness in type 2 diabetes mellitus (T2DM) patients.

**Methods:** General characteristics and serum IS concentrations were measured in 80 people with T2DM. Serum total IS levels were determined by high-performance liquid chromatography-mass spectrometry. A carotid-femoral pulse wave velocity (cfPWV) value >10 m/s, as determined using the SphygmoCor system, was defined as an indicator of aortic stiffness.

**Findings:** Among the 80 participants with T2DM, 30 participants (37.5%) were classified in the aortic stiffness group. The rates of hypertension as well as older age, systolic blood pressure, the serum levels of triglyceride, fasting glucose, glycated haemoglobin, blood urea nitrogen, creatinine, urine albumin-to-creatinine ratios, C-reactive protein, and IS were higher, while estimated glomerular filtration rates were lower in the aortic stiffness group than in the control group. Multivariate logistic regression analysis with additional variables also noted that IS level (odds ratio: 2.565, 95% confidence interval: 1.145–5.748, p = 0.022) was an independent predictor of aortic stiffness in T2DM. Multivariate forward stepwise linear regression analysis also showed that logarithmically transformed IS levels (log-IS, β = 0.261, adjusted $R^2$ change = 0.051, p = 0.019) were positively associated with cfPWV values in T2DM.

**Conclusions:** Serum IS level is an independent predictor of aortic stiffness and is positively associated with cfPWV values in T2DM.

***Keywords:*** *indoxyl sulphate, carotid-femoral pulse wave velocity, diabetes mellitus*

[Abstract:0772]

## DIABETIC KETOACIDOSIS DUE TO TYPE 3C DIABETES AS THE INITIAL MANIFESTATION OF PANCREATIC HEAD ADENOCARCINOMA IN A PATIENT WITH PSYCHOSIS

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**Purpose:** To present the case of patient with type 3c diabetes who appeared with diabetic ketoacidosis as the major clinical manifestation of pancreatic head adenocarcinoma.

**Methods:** A 61-year-old female was admitted due to multiple episodes of diarrheal for 7 days. Medical history included anxiety disorder, a recent diagnosis of type 2 diabetes, treated with empagliflozin/metformin, and significant weight loss. The patient was oligemic, hyperglycaemic and feverish, with severe high-anion gap metabolic acidosis. She was intravenously hydrated and started on an insulin drip. Laboratory results showed elevated cholestatic enzymes, inflammatory markers and ketonuria. Chest and abdominal X-rays were normal.

**Findings:** After initial resuscitation, a regimen of subcutaneously administered insulin glargine and insulin lispro was prescribed.

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HbA1c was 11%. Blood and urine cultures were positive for *E. coli*, sensitive to sultamicillin. Stool cultures revealed no pathogen. Remarkably high CA19.9 was observed. An ultrasound revealed dilatation of the common bile and pancreatic ducts. Computed tomography and MRCP showed a 4 cm, ill-defined, hypoattenuating mass of the pancreatic head alongside with two millimetric foci in the liver parenchyma. Jaundice appeared during hospitalization and an ERCP with stent placement was undertaken. A biopsy under endoscopic ultrasonographic guidance was performed, in order to establish the final diagnosis. Subsequently, chemotherapy was initiated.

**Conclusions:** Patients with psychosis are often overlooked and neglected, leading to delayed diagnoses. New-onset diabetes mellitus in adults might be due to an underlying exocrine pancreatic cancer. Medical doctors should be vigilant in cases where weight loss is predominant and the onset of the diabetes is abrupt.

**Keywords:** *pancreatic head adenocarcinoma, diabetic ketoacidosis, weight loss, type 3c diabetes mellitus*

[Abstract:0812]

## HYDROGEN SULFIDE AND TYPE 2 DIABETES MELLITUS: A DYNAMIC INTERACTION?

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[2] 4th Department of Internal Medicine, National and Kapodistrian University of Athens, Athens, Greece

**Purpose:** Hydrogen sulphide (H2S) is recognized as a signalling gasotransmitter. Animal studies indicate some involvment in carbohydrate metabolism. Effects of H2S on glucose homeostasis in patients with type 2 diabetes mellitus (T2DM) were investigated.

**Methods:** Seventy-eight patients with T2DM were enrolled. Demographic data, medications and comorbidities were recorded. Blood was collected and H2S was measured by an HPLC assay and results were dichotomized by the median of distribution. Homeostatic model assessment for insulin resistance (HOMA-IR) was performed.

**Findings:** The median (IQR) values for HBA1c and H2S were 7% (6.38-8.13) and 19.38 µmol/l (15.25-44.39) respectively. For insulin concentration the median was 15.35 Mu/ml (7.3-32.15) and for HOMA-IR 5.1 (1.9-8.9). The proportion of patients with HBA1c > 7% was 62.5% among those with concentration of H2S ≥ 19 µmol/l and 39.5% among patients with concentration of H2S < 19 µmol/l (odds ratio: 2.56; 95% CI: 1.03-6.37; p< 0.05). Median concentrations above and below the cutoff value of H2S were: insulin 9.15 Mu/ml (5.23-16.55) vs. 18.95 Mu/ml (10.0-34.3); and HOMA-IR 2.4 (1.1-6.3) vs. 6.1 (3.1-13.6) (p<0.05 for both variables).

**Conclusions:** Increased serum H2S was associated with increased HbA1c. H2S could be proposed as a potential marker of poor glycaemic control in T2DM. A negative correlation with insulin secretion and resistance was described.

**Keywords:** *hydrogen sulphide, diabetes, glycosylated haemoglobin*

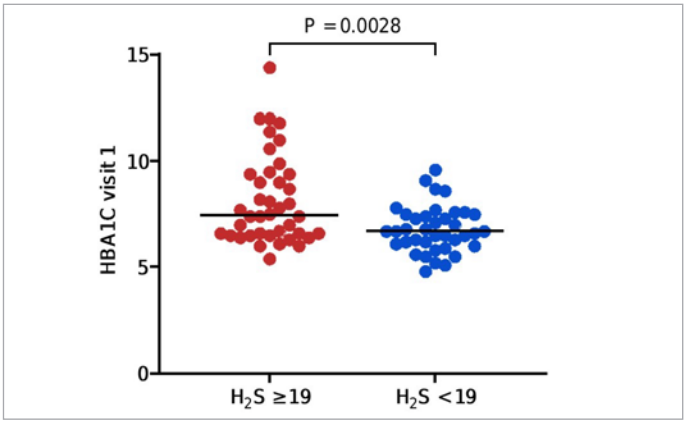


***Figure 1.*** *Levels of HbA1c vary by the level of circulating H2S.*

[Abstract:0820]

## BARIATRIC SURGERY AND IMMUNOLOGICAL DISORDERS: COULD THERE BE A LINK?

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**Introduction:** Bariatric surgery is a widely used procedure for the treatment of severe to massive obesity, yet the role of the immune system in the face of rapid and massive weight loss remains controversial. Some cases reported in the world literature have shown that a marked reduction in BMI following bariatric surgery could trigger rheumatological syndromes with disturbance of the immunological balance linked to autoimmunity and metabolic disorders. We report an observation.

**Case Presentation:** Ms. S.C, aged 44, treated for Hashimoto's thyroiditis, with a history of Sleeve gastrectomy two years ago, with no follow-up, has been presenting for a year with incapacitating polyarthralgia resistant to analgesic treatment, affecting large and small joints, and myalgia, with no other clinical signs suggesting connectivitis. Biological work-up revealed an inflammatory syndrome, as well as a disturbance in the immunological work-up: AAN was strongly positive. However, no autoimmune pathology could be identified. Given the presence of multiple deficiencies (vitamins B, C, D, and magnesium) revealed by an oligoscan. The patient was put on vitamin supplementation, and we noted a good clinical evolution.

**Conclusions:** The mechanism of immunological disorders occurring in obese patients who have undergone bariatric surgery is poorly understood, but the development of a real autoimmune pathology is possible, hence the importance of clinical and immunological monitoring.

**Keywords:** *bariatric surgery, autoimmunity disorders, oligoscan*

 **DOI:** 10.12890/2024_V11Sup1

[Abstract:0841]

# A CASE OF METASTATIC BREAST CANCER: CENTRAL ARGININE VASOPRESSIN DEFICIENCY DUE TO PITUITARY METASTASIS

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**Purpose:** A 52-year-old woman with a history of breast cancer admitted with dry mouth, polyuria, polydipsia. In her medical evaluation, it was found out that the breast cancer was relapsed and her symptoms were due to Diabetes Insipidus (DI) secondary to the pituitary metastases. This case aims to remind clinicians to consider pituitary metastases, as one of the infiltrative causes of DI, especially in patients admitting with polyuria-polydipsia and known malignancies.

**Methods:** Biochemical analysis and Imaging techniques were used in differential diagnosis of polyuria-polydipsia.

**Findings:** Simultaneously checked serum osmolality was 334 mOsmol/kg, urine osmolality was 113 mOsmol/kg, and urine density was 1000, led us to the diagnosis of DI. PET-CT imaging, that was done in search of the etiological background, demonstrated the metastatic lesions in the neurohypophysis, infundibulum, skull base and cervical vertebrae. Fortunately, the anterior hypophysial axis was intact, excluding the need of hormone replacement therapy and let her symptoms be regressed with vasopressin alone.

**Conclusions:** In conclusion metastases to pituitary gland is rare, it may occur in the course of lung and breast cancers. In patients with known malignancies, new onset polyuria-polydipsia should alert the clinician regarding pituitary metastasis and make them conduct further evaluation as soon as possible.

*Keywords: diabetes insipidus, pituitary gland, breast cancer*

| Laboratory findings | |
|---|---|
| Sodium, mEq/L | 154 |
| Serum osmolality , mOsm/kg | 334 |
| Urine osmolality , mOsm/kg | 113 |
| Urine density | 1000 |

***Table 1.*** *Abnormal laboratory findings.*

| Anterior Pituitary Hormone Panel | | | |
|---|---|---|---|
| ACTH, pg/mL | 36.2 | GH, ng/mL | 1.51 |
| Cortisol, µg/dL | 14 | IGF-1, ng/mL | 58.3 |
| TSH, µIU/mL | 2.42 | FSH, mIU/mL | 6.86 |
| sT4, pmol/L | 9.0 | LH, mIU/mL | <0.07 |
| sT3, pmol/L | 4.69 | Estradiol pg/dl | 46.85 |

***Table 2.*** *Anterior Pituitary Hormone Panel.*
*Anterior pituitary hormone evaluation showed normal adrenal and thyroid axes, indicating no need for replacement therapy.*

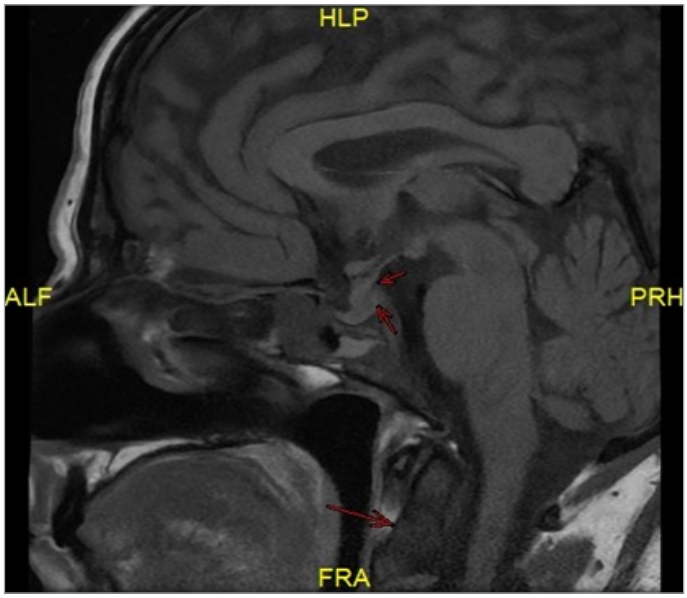


***Figure 1.*** *T1 intensity loss related to neurohypophysis.*

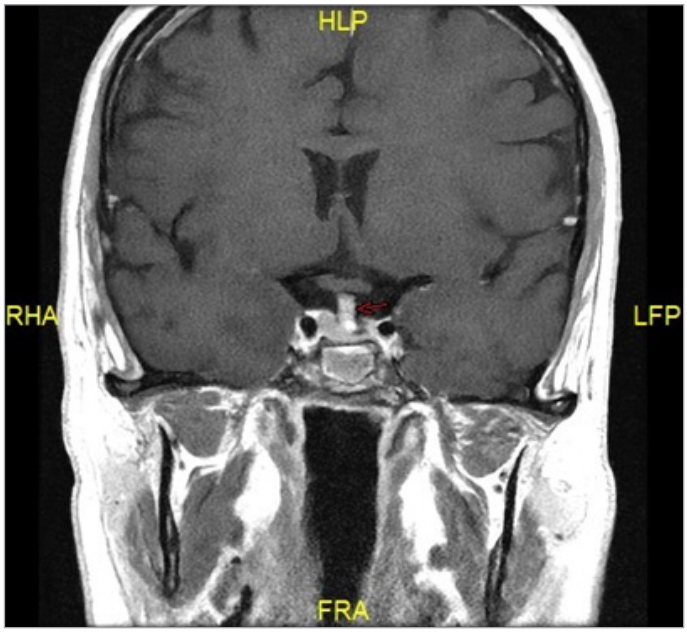


***Figure 2.*** *Increase in thickness of the infundibulum.*


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[Abstract:0905]

## IMPACT OF GLYCAEMIC CONTROL ON MACES IN A TYPE 2 DIABETIC POPULATION WITH ALBUMINURIA IN PRIMARY CARDIOVASCULAR PREVENTION. POST-HOC ANALYSIS OF THE NID-2 TRIAL

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**Aim:** To evaluate the impact of glycaemic control on major adverse cardiovascular events (MACE) in a multifactorial randomized controlled trial.

**Methods:** Nephropathy in diabetes type 2 (NID-2) is an open randomized clinical trial conducted on a type 2 diabetic patients followed at 14 Italian diabetes centres. Patients were centre randomized to intensified multifactorial treatment (MT) and Standard of Care (SoC). Of the 395 randomized patients, 368 completed the intervention phase (27 deaths). Among these, 321 (SoC n. 139; MT n. 182) were MACE-free during the intervention and were analysed, categorized by HbA1c <7% and treatment (MT vs. SoC).

**Results:** During the post-intervention follow-up (median 7.9 years, IQR 6.6-10.4), 183 MACEs occurred. In the SoC group there were 92 events (33 in the HbA1c <7% subgroup and 59 in the ≥7% subgroup), while the MT group experienced 91 events (64 in the HbA1c <7% subgroup and 27 in the ≥7% subgroup). Kaplan-Meier analysis demonstrated a statistically significant difference between the two arms of the SoC group (p=0.0256), but no significant difference in the two arms of the MT group (p=0.198). Using the MT subgroup with HbA1c <7% as a reference in Kaplan-Meier analysis, there was no statistically significant difference with the MT subgroup and HbA1c ≥7% (p=0.251) or with the SoC subgroup HbA1c <7% (p=0.472). However, a significant difference was observed with the SoC group and HbA1c ≥7% (p=0.01).

**Conclusions:** In the context of MT, optimal glycaemic control has limited impact on MACEs compared to other risk factors but is crucial when contraindicated.

*Keywords:* *MACE, diabetes, multifactorial treatment*

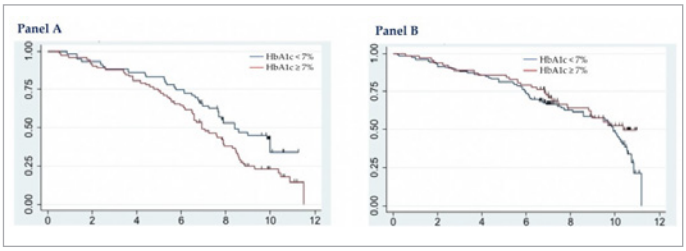


***Figure 1.*** *Kaplan Maier Analysis.*
*Kaplan-Meier survival analysis estimating the risk of MACEs according to HbA1c value, among SoC (Panel A) and MT (Panel B)*

[Abstract:0909]

## COMPARISON OF ACR TIRADS (AMERICAN COLLEGE OF RADIOLOGY THYROID IMAGE REPORTING AND DATA SYSTEM) SCORING WITH POSTOPERATIVE PATHOLOGY FINDINGS

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**Purpose:** To compare the ACR TIRADS scoring obtained from preoperative ultrasound (US) data with postoperative pathological findings and to evaluate the specificity and sensitivity of the ACR TIRADS scoring.

**Methods:** Our study was designed as a retrospective, cross-sectional, single-centre study. 120 patients who underwent thyroidectomy at Umraniye Training and Research Hospital between 2016 and 2022 were included in the study. ACR TIRADS points and scores were calculated according to US data. Postoperative histopathological diagnoses were examined and patients were divided into two groups: benign and malignant. The distribution of ACR TIRADS points and scores according to histopathological results was examined. The diagnostic value of ACR TIRADS scoring in predicting malignancy was investigated.

**Findings:** Comparing the ACR TIRADS scoring and postoperative pathological findings, TR-2 had a malignant diagnosis rate of 9.1%, TR-3 had a malignant diagnosis rate of 37.5%, TR-4 had a malignant diagnosis rate of 36.2%, and TR-5 had a malignant diagnosis rate of 74.1% (p: 0.001). It was found that the rate of malignant diagnosis increased as the ACR TIRADS scoring increased (p: 0,000). The success of ACR TIRADS in predicting malignancy was found to be 70% (95%CI: 0.609-0.800) (p<0.001). TR-4 was found to be the most suitable cut-off point with selectivity of 80.3% sensitivity and 63.8% specificity.

**Conclusions:** ACR TIRADS is a successful method to differentiate malignancy. Supporting it with other US findings may increase its success, but multicentre studies are needed.

*Keywords:* *TIRADS, malignancy, ultrasound*

 **DOI:** 10.12890/2024_V11Sup1

[Abstract:0920]

## A CASE OF HYPONATREMIA DUE TO SECONDARY ADRENAL INSUFFICIENCY, AS A RESULT OF INACTIVE PITUITARY MACROADENOMA IN A 77-YEAR-OLD WOMAN

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**Purpose:** To illustrate the case of a hyponatraemic woman with underlying secondary adrenal insufficiency due to the presence of a pituitary macroadenoma.

**Methods:** A 77-year-old woman, with a medical history of arterial hypertension, hypothyroidism, type 2 diabetes mellitus and rheumatoid arthritis, was transferred to the emergency department due to dizziness and nausea. She was lethargic and had orthostatic hypotension. The patient appeared confused, but neurological examination revealed no focal deficits or signs of meningism. Laboratory tests exhibited hyponatremia (Na: 112mmol/L). Intravenous crystaloid fluids were administrated and the patient was admitted for further evaluation.

**Findings:** Cranial computed tomography exhibited a sellar mass. An MRI of the brain with the use of intravenous contrast revealed a macroadenoma of the pituitary gland (dimensions: 23x18 mm). Visual fields examination was normal, whereas further tests showed low levels of cortisol (3 μg/dl), FSH (2.4 mIU/mL), LH (0.48 mIU/mL) and ACTH (14.9 pg/mL), with a mildly elevated prolactin (33 ng/mL). Consequently, the patient was started on hydrocortisone and was referred to Neurosurgery Department for further treatment, after hyponatremia was corrected.

**Conclusions:** Hyponatremia must always be excluded in patients with clinical symptoms, such as lethargy, dizziness, and nausea. A cranial CT should be performed in order to exclude the presence of a sellar tumour. An evaluation of pituitary function should be performed whenever a sellar mass is encountered, with inactive pituitary adenomas being the most common cause. Adenomas are identified by their size and, when active, by the hormone they hypersecrete. Proper evaluation by a team of endocrinologists, neurosurgeons and occasionally radiation oncologist is warranted.

**Keywords:** *pituitary macroadenoma, secondary adrenal insufficiency, hyponatremia*

[Abstract:0930]

## THE RELATIONSHIP OF COGNITIVE FUNCTIONS AND MICRONUTRIENT LEVELS IN NON-GERIATRIC PATIENTS WITH DIABETES MELLITUS

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**Introduction:** Here, we aimed to examine the relationship between cognitive functions and micronutrient levels in non-geriatric diabetic individuals.

**Methods:** According to inclusion (age: 18-65 years, having type 2DM, not having malabsorption syndrome/chronic/acute severe disease/previous gastrointestinal operation) and exclusion criteria(dementia/Parkinson's/past CVO diagnosis/psychiatric illness, preparations affecting cognition/micronutrient levels) 120 patients were included in the study. Cognitive functions were evaluated with the Montreal cognitive assessment scale. FBG, HbA1c, urea, creatinine, AST, ALT, total protein, albumin, iron, zinc, magnesium, calcium, vitamin B12, folic acid, vitamin A, C, E and D levels were measured. Patients with and without cognitive dysfunction were classified and their relationships with micronutrient levels were evaluated by SPSS.

**Results:** 120 patients (75F, 45M) were included in the study. The mean age was 53.0± 8.4 years. Cognitive dysfunction was present in 50% of the patients. There were no statistically significant differences in the levels of LWH, HbA1c, urea, creatinine, AST, ALT, total protein, folic acid, vitamin A, C and E according to age, gender and cognitive dysfunction variables. Albumin, iron, zinc, magnesium, calcium, vitamin B12, vitamin D levels were significantly lower in the group with cognitive dysfunction than in the group without cognitive dysfunction. Albumin-iron-zinc-magnesium-calcium-vitamin B12-vitamin D levels in univariate model and albumin-iron-magnesium-calcium-vitamin B12 levels in multivariate model were effective in differentiating patients with and without cognitive dysfunction.

**Conclusions:** This study shows that there is a significant relationship between cognitive functions and micronutrient levels in non-geriatric diabetic patients. Screening and replacement of micronutrients is important for improvement of cognitive functions in DM.

**Keywords:** *type 2 diabetes mellitus, cognitive dysfunction, micronutrients*

 **DOI:** 10.12890/2024_V11Sup1

[Abstract:0934]

## PREVALENCE OF UNCONTROLLED HYPERTENSION AND ASSOCIATED RISK FACTORS AMONG PATIENTS WITH TYPE 2 DIABETIC PRESENTING TO AN INTERNAL MEDICINE CLINIC

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**Background and Aims:** Hypertension (HT)is an important cardiovascular risk factor like diabetes. In this study, we aimed to determine the rate of uncontrolled hypertension and associated risk factors in type 2 diabetes mellitus (T2DM) patients followed in the internal medicine clinic of our hospital.

**Methods:** In our retrospective study, a total of 244 patients with T2DM who were hospitalized in the internal medicine service and admitted to outpatient clinics between December 2020 and May 2021 were examined. HT was defined as office arterial blood pressure (BP) ≥140/90 mmHg. Afterwards, the patients were grouped as under control or not. Demographic data, chronic diseases, medication compliance and biochemical parameters recorded between these two groups were compared.

**Results:** When the BP target was set to <140/90 mmHg, as in most guidelines, uncontrolled HT was detected in 60.8% of the patients. In the 2019 Turkish HT Consensus Report, the BP target was accepted as <140/80 mmHg in those aged 65 and over and <130/80 mmHg in those under 65 years of age. According to these targets, uncontrolled HT was detected in 70.5% of the patients. HbA1c, LDL cholesterol and triglyceride values were found to be significantly higher in the uncontrolled HT group ($p<0.05$). Additionally, low medication compliance and low education level were found to be statistically significantly higher in this group ($p<0.05$).

**Conclusions:** The rate of uncontrolled HT is quite high in type 2 diabetic patients. We should not forget that we need to control these two very important cardiovascular risk factors together.

***Keywords:*** *hypertension, uncontrolled hypertension, type 2 diabetes*

[Abstract:0938]

## THE EFFECT OF MAKING A NEW CLASSIFICATION SIMILAR TO TNM CLASSIFICATION ON TREATMENT IN PATIENTS WITH DIABETES MELLITUS: A CROSSECTIONAL STUDY

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Diabetes is a metabolic disease that progresses with glucotoxicity. For optimal follow-up and treatment of the disease, macrovascular disease (MaH), microvascular disease (MiH), kidney functions and metabolic status must be known. Staging has been proposed in diabetes, similar to TNM staging in oncology. Thus, it will be possible to examine the patient holistically. We subjected our 325 type 2 diabetes cases to TNM-like classification. Patients were examined, metabolic status and GFR were evaluated, medical records were examined, and necessary treatment changes were made. Example Stage II B 2 c, II: Number of macrovascular diseases, B: Number of microvascular diseases, 2: GFR status, c: metabolic control Hba1c MiH status; A 44% MiH absent, B 12% MiH 1, C 21% MiH 2, D 23% MiH 3. MaH status was determined as I: 75% MaH absent, II: 21% MaH 1, III: 4% MaH 2. 67% of those who do not have macrovascular disease also do not have microvascular disease. 25 percent have an MIH. 53% of those with macrovascular disease also have microvascular disease. As the number of MiH increased, the rate of treatment change increased, respectively: 52%, 57%, 63% (p 0.049). As the number of MaH increased, the rate of treatment change increased from 44% to 65% (p 0.012). In the group with GFR 30-58, the rate of treatment change increased to 77% (p 0.02).

**Conclusions:** Evaluating the patient's MaH, MiH, GFR and metabolic status simultaneously has led to increased awareness in treatment. More large-scale prospective studies are needed on this subject.

***Keywords:*** *diabetes, TNM staging, change of therapy*



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| | A MiH absent | B MiH 1 | C MiH 2 | D MiH 3 | Total |
|---|---|---|---|---|---|
| Stage I MaH absent | 159 (48.9%) | 62 (19%) | 17 (5.2%) | 4 (1.2%) | 242 (74.3%) |
| Stage II MaH 1 | 32 (9.8%) | 20 (6.2%) | 11 (3.4%) | 5 (1.5%) | 68 (20.9%) |
| Stage III MaH 2 | 1 (0.3%) | 4 (1.2%) | 5 (1.5 %) | 2 (0,6%) | 12 (3,6 %) |
| Stage IV Ma H 3 | | | | | |
| Stage V Ma H 4 | 3 (0,9%) | | | | 3 (0,9 %) |
| Total | 195 (60%) | 86 (26 %) | 33 (10 %) | 11 (3.5 %) | 325 |

*Table 1. Distribution of Macrovascular and Microvascular diseases.*

| | a | b | c | d | total |
|---|---|---|---|---|---|
| Sustage1 | 101 (31%) | 50 (15%) | 22 (7%) | 19 (6%) | 192 (60%) |
| Substage2 | 35 (11%) | 34 (10%) | 18 (6%) | 14 (4%) | 101 (31%) |
| Substage3 | 9(3%) | 11 (3%) | 6 (2%) | 5 (1.5%) | 31 (9%) |
| Substage5 | | | | 1 (0,3%) | 1 (0.3%) |
| total | 145 (45%) | 95 (30%) | 46 (14%) | 39 (12%) | 325 |

*Table 2. Relationship Between GFR and Metabolic Status.*

[Abstract:0947]

## A CASE OF DIABETIC KETOACIDOSIS ASSOCIATED WITH SGLT2 INHIBITORS: NEWLY DIAGNOSED LADA(LATENT AUTOIMMUNE DIABETES IN ADULTS)

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Euglycemic diabetic ketoacidosis (EDKA) is an uncommon diabetic complication associated with fasting, surgery, pregnancy and the use of SGLT2 inhibitors. The signs and symptoms of EDKA may be similar to that of DKA but with normal blood sugar levels, which may make the diagnosis difficult. We present here the case of a 53-year-old woman, a known case of type 2 diabetes mellitus for the last five years, treated with medications including metformin, sitagliptin, dapagliflozin, basal insulin glargine 1x20 units per day. She applied to the emergency room with complaints of nausea, vomiting. She has been taking oral antidiabetics since she was diagnosed and basal insulin was added 2 years ago. The patient had not used insulin for 4 days. The patient was conscious, oriented. Laboratory investigation revealed a metabolic acidosis with venous pH of 7.05 and bicarbonate of 8 mmol/l. Plasma glucose was 201 mg/dL and 3+ ketones were present in the urine. She was started on continuous intravenous insulin and IV infusion of normal saline and dextrose. The patient's haemoglobin A1c level was 10.6% and c -peptide level 0.3 ng/ml at admission. Anti-GAD antibodies was detected as 1239.79 IU/Ml (positive). After resolution of DKA, basal and bolus insulin was started while dapagliflozin was discontinued. This patient was diagnosed with Lada. The lack of exogenous insulin therapy contributed greatly to the onset of DKA in patient. SGLT2 inhibitors should not be used in type 1 DM and should be used with caution in type 2 DM, who are very insulin deficient.

*Keywords: euglycemic DKA, SGLT-2 inhibitors, lada, diabetes mellitus, metabolic asidosis*

[Abstract:0961]

## A CASE REPORT OF LYMPHOCYTIC HYPOPHYSITIS

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**Case Presentation and Diagnostic Pathways:** A 31-year-old female patient with no known disease was admitted to the hospital due to complaints of headache, polyuria, polydipsia and secondary amenorrhea. Laboratory examination revealed signs of panhypopituitarism (Table 1). In addition, hypernatremia and low urine density and osmolality were compatible with diabetes insipidus. In the Pituitary MRI, a symmetrical nodular thickening of approximately 8x4.5 mm in size was observed in the parts of the pituitary infundibulum. No signs of pituitary adenoma were detected in the parenchyma (Figure 1A). Lymphocytic hypophysitis was considered in the differential diagnosis. The patient was started on 20 mg/day hydrocortisone and desmopressin treatment, and levothyroxine was added during follow-up. When she came for a follow-up visit 1 month later, it was observed that her complaints had regressed. In the third month MRI control, regression was detected in the nodular thickening in the infundibulum. The patient is currently being monitored with levothyroxine and desmopressin treatment. In the Pituitary MRI taken at the 2nd year of treatment, total regression was observed in the nodular thickening in the infundibulum observed in the previous MRI examination (Figure 1B).

**Clinical Hypothesis:** Lymphocytic hypophysitis occurring with panhypopituitarism.

**Discussion and Learning Points:** Lymphocytic hypophysitis is rare. It has been reported that the best response to steroid treatment among hypophysitis is lymphocytic hypophysitis. Young patient with symptoms of headache, polyuria, and polydipsia, diffuse thickening of the infundibulum on pituitary MRI should recommend lymphocytic hypophysitis in the differential diagnosis.

*Keywords: hypophysitis, hypopituitarism, lymphocytic hypophysitis*



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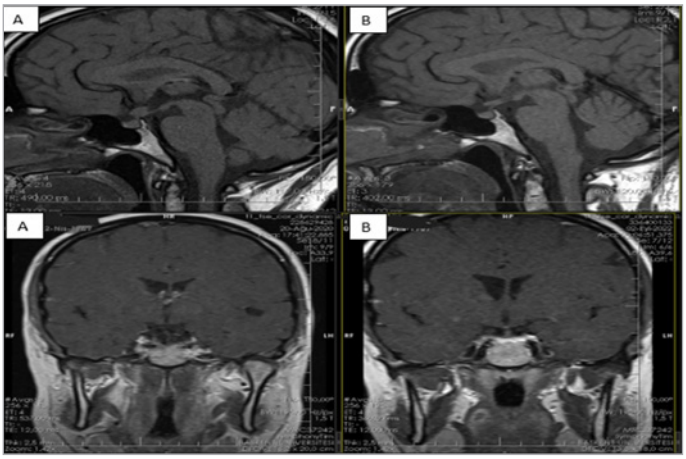


***Figure 1.*** *Pituitary MR image.*
*A: Pituitary MR imaging at diagnosis, B: MR imaging after treatment.*

| Laboratory Test | Before Treatment | After Treatment |
|---|---|---|
| Sodium | 150 mmol/L | 139 mmol/L |
| Potassium | 4 mmol/L | 4.1 mmol/L |
| TSH | 0.254 mU/L | 0.206 mU/L |
| Free T4 | 0.88 ng/dL | 1 ng/dL |
| Prolactin | 93.39 µg/L | 15.08 µg/L |
| Cortizol | 2.8 µg/dL | 16.1 µg/dL |
| FSH | 5.15 U/L | 7.23 U/L |
| LH | 2.05 U/L | 7.53 U/L |
| Estradiol (E2) | < 20 ng/L | 33 ng/L |
| Urine density | 71 mOsm/kg | 400 mOsm/kg |
| Urine osmolality | 1002 | 1010 |

***Table 1.*** *Laboratory test.*
*Laboratory test before and after treatment.*

[Abstract:0968]

# AN UNEXPECTED SIDE EFFECTS OF LIRAGLUTIDE: HYPOGLYCEMIA, ACIDOSIS AND KETOSIS

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Liraglutide, a glucagon-like peptide-1 receptor agonist (GLP1-RA), is often associated with a lower risk of hypoglycaemia. However, when combined with other anti-diabetic medications or medical conditions, GLP-1RAs have been shown to pose an elevated risk of hypoglycaemia. Liraglutide, renowned for its role in glycaemic control, and gastric botox, utilized for its potential impact on satiety, collectively pose a clinical challenge when their confluence leads to unexpected metabolic consequences. This case raises concerns about the potential implications of inducing hypoglycaemia and ketosis. A 22-year-old female patient presented to the emergency room with complaints of abdominal pain, nausea, and vomiting. It was discovered that the patient had administered Liraglutide before dinner, and after eating her meal, she experienced increasing abdominal pain, nausea, and vomiting. Despite having no chronic illnesses, the patient had undergone gastric botox two days prior due to obesity and started using Liraglutide afterward. No accompanying diarrhoea was reported, and the patient did not mention any other medication use. Laboratory values showed an increased anion gap metabolic acidosis with a glucose level of 62 mg/dL, indicating hypoglycaemia. The delta anion gap was calculated as 1.7. There was no evidence of renal failure, lactic acidosis, or the use of methanol/ethanol/ethylene glycol. Fingerstick ketone measurement revealed a value of 3.1. The combination of Liraglutide and gastric Botox likely triggered postprandial hypoglycaemia and ketosis. Timely recognition of these effects guided therapeutic interventions, involving the initiation of dextrose and insulin infusion and the cessation of linagliptin. This case serves as a notable example highlighting the necessity to emphasize and closely monitor the hypoglycaemic and ketonic potential associated with Liraglutide use, ensuring a comprehensive approach to managing such complications for optimal patient outcomes.

**Keywords:** *GLP-1A, gastric botox, acidosis, hypoglycaemia, ketosis*

| Venus blood gas parameters | Result |
|---|---|
| pH | 7.223 |
| PCO2 (mmHg) | 28.3 |
| PO2 (mmHg) | 37.9 |
| Na (mmol/L) | 141.2 |
| K (mmol/L) | 4.45 |
| Cl | 101.5 |
| Laktat (mmol/L) | 1.70 |
| C, ionized | 1.29 |
| $cHCO_3$ | 11.4 |

***Table 1.*** *Venous blood gas parameters.*

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[Abstract:1036]

# SKIP METASTASIS IN FOLLICULAR THYROID CANCER: EXPLORING A RARE CASE FROM CLINICAL AND THERAPEUTIC PERSPECTIVES

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**Introduction:** Follicular thyroid cancer (FTC) is the second most common thyroid cancer and generally has a favourable prognosis. FTC tends to metastasize haematogenously, most frequently to the bones and lungs. These metastases can be functional and lead to hyperthyroidism. 'Skip metastasis' is commonly observed in papillary thyroid cancer but not reported in FTC. We present a case of distant organ metastasis and skip metastasis.

**Case Presentation:** A 71-year-old female patient presented to the Orthopedics department with complaints of pain in the left groin, where a mass was detected in the left iliac bone. The patient's history revealed a subtotal thyroidectomy 28 years ago. A biopsy of the iliac bone mass was performed, and the biopsy result was reported to be consistent with metastasis of follicular thyroid cancer. Neck ultrasound revealed residual thyroid tissue measuring 3 cm with several nodules. A PET scan showed FDG uptake measuring 84x76 mm in the left iliac bone and metastatic lymph node involvement in the left parailiac, obturator, and inguinal regions. Total thyroidectomy and bone metastasectomy were performed. The pathology report confirmed follicular thyroid cancer. The patient received RAI therapy.

**Discussion:** The likelihood of thyroid cancers being initially diagnosed with distant metastases and these metastases being functional is low but possible. A thorough clinical history and physical examination are always crucial for diagnosis. A multidisciplinary approach is essential for treatment. Skip metastasis has not been reported in previous FTC cases, and this is the first case in this domain.

***Keywords:*** *follicular thyroid cancer, atypical presentation, skip metastases*

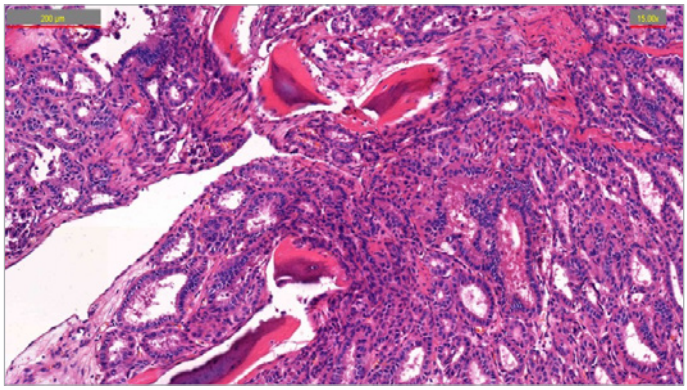

***Figure 1.*** *Follicular thyroid carcinoma metastasis destroying the left SIAS (spina iliaca anterior superior) bone. Microfollicular structures showing bone invasion.*

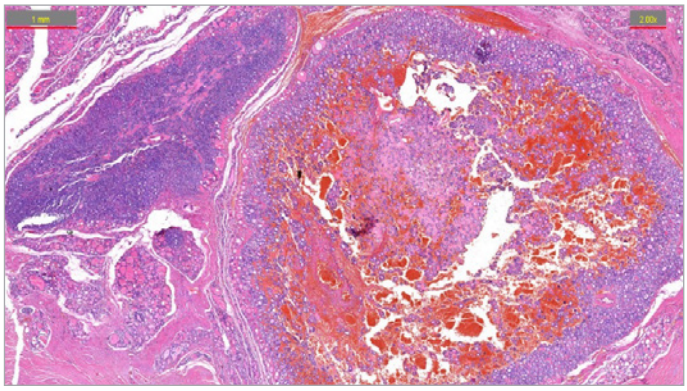

***Figure 2.*** *Residual follicular carcinoma invasion of various sizes (0.2-0.5 cm) forming microfollicular structures with occasionally transparent cytoplasm and mild cytological atypia, right thyroid lobe.*

[Abstract:1053]

# HYPERPHOSPHATEMIA-ASSOCIATED TUMORAL CALCINOSIS CASE PRESENTATION

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[1] ⚠ The authors did not provide affiliations upon requests from the event organizer

**Introduction:** Tumoral calcinosis (TC) is a rare disorder characterized by extensive, calcified, painful soft tissue masses surrounding large joints, particularly in young adults. It is often associated with repetitive trauma or prolonged periarticular pressure, commonly observed in the hips, shoulders, and elbows. The condition may manifest sporadically or have a familial predisposition. Vitamin D hypervitaminosis or tumoral calcinosis secondary to chronic kidney failure may contribute to its development. Our case highlights familial hypophosphatemic tumoral calcinosis, possibly linked to a relative deficiency or resistance to FGF-23, a crucial player in phosphorus metabolism.

**Case Presentation:** A 38-year-old male with no known chronic illnesses was referred from the nephrology department to our clinic due to hyperphosphatemia. The patient had four siblings, and there was a history of third-degree consanguinity among the parents. The patient underwent 14 surgeries for various soft

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tissue lesions, all painful and progressive. The initial operation, performed at the age of 11 on the right knee, resulted in a pathology report diagnosing tumoral calcinosis. During the physical examination, the patient's vital signs were within normal ranges, and laboratory tests revealed hyperphosphatemia. Bone mineral density measurements indicated abnormalities, and a bone survey identified calcifications and deformities. Genetic analysis revealed a GALNT3 mutation.

**Management:** The patient was advised to avoid trauma and adhere to a low-phosphorus diet. Vitamin D replacement therapy and phosphorus-binding treatment (calcium acetate 700 mg 3x2) were initiated with meals. Sevelamer 800 mg 3x3 was added when the target phosphorus level couldn't be achieved, resulting in a decrease in serum phosphorus. Genetic consultation and an eye examination were recommended.

*Keywords:* *tumoral calcinosis (TC), hypophosphatemic, FGF-23*

[Abstract:1054]

## REFRACTORY HYPOGLYCEMIA IN YOUNG NONDIABETIC WOMAN

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**Case Presentation:** A 32-year-old woman with a family history of type 2 diabetes in both parents presents to the emergency department. She experiences increasing episodes of discomfort, sweating, anxiety, and palpitations over the past three months, attributing them to hypoglycaemia with ambulatory glucose levels <70 mg/dL. Despite sugar intake, she occasionally requires emergency assistance. Emergency serial glucose measurements reveal levels persistently below 70 mg/dL despite glucose infusion, accompanied by adrenergic symptoms. An extended anamnesis reveals a hypocaloric diet and the use of "fat-burning" commercial supplements.

**Hypothesis:** Given the recurrent hypoglycaemic episodes and the patient's strict diet, with excessive preoccupation with weight, a hypothesis of factitious hypoglycaemia is considered.

**Diagnostic Pathways:** Laboratory tests, including HbA1c and hormonal profiles, are within normal limits. Elevated levels of glibenclamide are detected in the blood. The patient confesses to using glibenclamide as part of her weight loss regimen, acquired online without a prescription. The patient is diagnosed with factitious hypoglycaemia related to surreptitious use of sulfonureas in the context of an eating disorder, leading to referral to mental health services.

**Discussion and Learning Points:** Factitious hypoglycaemia poses a diagnostic challenge, requiring a high index of suspicion and comprehensive testing to exclude organic causes. Clinicians should consider it in patients presenting with hypoglycaemia, emphasizing the importance of determining antidiabetic medication levels during episodes. In this case, the absence of a clear fasting or postprandial distribution of hypoglycaemia, coupled with a history suggestive of an eating disorder, underscores the significance of considering covert intake of oral antidiabetics.

*Keywords:* *recurrent hypoglycaemia, antidiabetics, eating disorder*

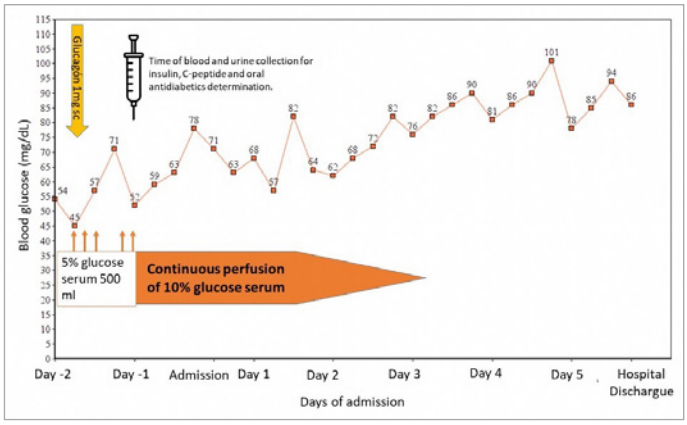


***Figure 1.*** *Evolution of blood glucose and treatment administered.*

[Abstract:1057]

## BRAIN FOG, ABDOMINAL PAIN AND DIABETES

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A 31-year-old woman presented with a 4-month of abdominal pain, nausea, and vomiting. Her medical history includes type 1 diabetes with irregular control and multiple target organ involvement (retinopathy, foot ulcers and nephropathy). She developed persistent behavioural symptoms, progressive weakness and autonomic instability. She was tachycardic on initial observations and hypertensive with BP 210/120 mmHg during her hospital stay. Her abdomen was soft and non-tender.

She had normal CT head scan. Cerebrospinal fluid was acellular with normal protein and glucose. On admission she developed anxiety and increasing agitation that requires sedation, orotracheal intubation and admission to the ICU. During her stay in the ICU, given the patient's neuropsychiatric symptoms and the history of recurrent abdominal pain a possible diagnosis of acute intermittent porphyria was considered.

The urine PBG screen was positive, and the sample was sent to a reference centre for quantification. Haem alginate treatment was started to suppress her porphyrin levels. After 48 hours of treatment, she was extubated without incident. Subcutaneous contraceptive implant was removed due to a possible relationship with the outbreak. In the hospitalization ward, she

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had no associated complications, and was discharged with an appointment for a genetic study.
Acute intermittent porphyria (AIP) is a rare autosomal dominant disease characterized by a deficiency of hydroxymethylbilane synthase. AIP is more common in females and typically presents in the late teens to early 30s. It presents with abdominal pain, nausea, vomiting, peripheral neuropathy, and seizures. Treatment for acute attacks is intravenous heme.

*Keywords:* *acute Intermittent Porphyria, abdominal pain, heme*

[Abstract:1065]

## THE RELATIONSHIP BETWEEN FIBRINOGEN-LIKE PROTEIN-1 LEVELS AND ANTHROPOMETRIC MEASUREMENTS AND SUBCLINICAL INFLAMMATION IN OBESE TURKISH WOMEN

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**Purpose:** Obesity, a global health problem, leads to chronic low-grade inflammation and related diseases. Fibrinogen like protein-1 (FGL-1), which is mainly released from hepatocytes, has elevated serum levels in chronic inflammation such as obesity. The aim of this study is to analyse the correlation between FGL-1 serum levels with anthropometric measurements, visceral adiposity indices and inflammatory parameters in obese adult women.
**Methods:** We prospectively enrolled 170 female patients aged 18 to 50 years, without comorbidity or chronic drug use, between May and June 2023 at the Internal Medicine Clinic of Bagcilar Training and Research Hospital. Patients were divided into healthy, overweight and obese groups based on BMI. Fasting values of biochemical variables and hemogram parameters were evaluated and anthropometric measurements and visceral adiposity indices were recorded, followed by comparison between groups and correlation analysis within the obese group.
**Results:** Our study showed a significant increase in serum FGL-1 concentrations that was associated with obesity severity. In addition, increased leukocyte, platelet, CRP, lymphocyte and monocyte/HDL levels were observed in the transition from the healthy to the obese group. Particularly in the obese group, FGL-1 showed a remarkable positive correlation with platelet/lymphocyte ratio, waist-to-hip and waist-to-height ratio, while positive correlations were also found between Visceral Adiposity Index, Lipid Accumulation Product Index, TG/HDL ratio and FGL-1 (Table 1).
**Conclusions:** The associations of FGL-1 with obesity severity and markers of fat distribution are evident, suggesting its potential as a biomarker of inflammation and body fat distribution. In addition, the study provided new correlations between the monocyte/HDL ratio and weight gain.

*Keywords:* *obesity, FGL-1, subclinical inflammation, anthropometric measurements, visceral adiposity indices*

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | r | 1 | | | | | | | | | | | | | | |
| | p | . | | | | | | | | | | | | | | |
| 2. BMI | r | 0,09 | 1 | | | | | | | | | | | | | |
| | p | ,412 | . | | | | | | | | | | | | | |
| 3. PCT | r | 0,027 | -0,044 | 1 | | | | | | | | | | | | |
| | p | ,808 | ,692 | . | | | | | | | | | | | | |
| 4. FGL-1 | r | ,275* | ,021 | -0,112 | 1 | | | | | | | | | | | |
| | p | ,011 | ,847 | ,308 | . | | | | | | | | | | | |
| 5. CRP | r | -0,183 | ,285** | -0,081 | -0,013 | 1 | | | | | | | | | | |
| | p | ,093 | ,008 | ,459 | ,903 | . | | | | | | | | | | |
| 6. ABSI | r | ,013 | 0 | -0,04 | 0,18 | ,241* | 1 | | | | | | | | | |
| | p | ,904 | 0,795 | ,716 | ,100 | ,026 | . | | | | | | | | | |
| 7. MHR | r | -0,193 | 0,028 | -0,149 | 0 | 0,161 | 0,162 | 1 | | | | | | | | |
| | p | ,077 | ,802 | ,172 | 0,887 | ,140 | ,139 | . | | | | | | | | |
| 8. PLR | r | ,155 | 0,011 | 0,056 | ,234* | 0 | 0,027 | -,216* | 1 | | | | | | | |
| | p | ,157 | ,922 | ,609 | ,031 | 0,768 | ,807 | ,047 | . | | | | | | | |
| 9. LMR | r | -0,065 | 0,016 | 0,023 | -0,09 | 0,014 | ,087 | -0,055 | -,372** | 1 | | | | | | |
| | p | ,556 | ,888 | ,834 | ,412 | ,901 | ,426 | ,620 | ,000 | . | | | | | | |
| 10. WC | r | 0,159 | ,779** | -0,053 | 0,156 | ,407** | ,528** | 0,152 | 0,036 | ,061 | 1 | | | | | |
| | p | ,145 | ,000 | ,631 | ,153 | ,000 | ,000 | ,165 | ,743 | ,582 | . | | | | | |
| 11. WHR | r | ,207 | 0,197 | -0,079 | ,264* | ,234* | ,697** | 0,182 | 0,042 | 0,116 | ,616** | 1 | | | | |
| | p | ,057 | ,070 | ,470 | ,015 | ,031 | 0 | ,095 | ,703 | ,290 | ,000 | . | | | | |
| 12. WHtR | r | ,259* | ,777** | -0,017 | ,221* | ,371** | ,355** | ,136 | 0,026 | 0,038 | ,933** | ,608** | 1 | | | |
| | p | ,017 | ,000 | ,878 | ,042 | ,000 | ,001 | ,215 | ,811 | ,728 | ,000 | ,000 | . | | | |
| 13. VAI | r | 0,134 | 0,153 | -0,047 | 0,091 | 0,044 | ,292** | ,403** | -0,106 | ,390** | ,311** | ,425** | ,336** | 1 | | |
| | p | 0,221 | 0,162 | 0,67 | 0,405 | 0,691 | 0,007 | 0 | ,335 | ,000 | ,004 | ,000 | ,002 | . | | |
| 14. TG/HDL | r | 0,133 | 0,149 | -0,029 | ,077 | 0,022 | 0,211 | ,393** | 0 | ,387** | ,257* | ,367** | ,294** | ,995** | 1 | |
| | p | ,225 | ,174 | ,792 | ,483 | ,844 | ,053 | ,000 | 0,339 | ,000 | ,018 | ,001 | ,006 | ,000 | . | |
| 15. LAPI | r | ,255* | ,449** | -0,009 | ,071 | 0,144 | ,315** | ,239* | -0,12 | ,312** | ,574** | ,464** | ,591** | ,879** | ,867 ** | 1 |
| | p | ,019 | ,000 | ,935 | ,516 | ,189 | ,003 | ,028 | ,274 | 0,004 | ,000 | ,000 | ,000 | ,000 | ,000 | . |

***Table 1.*** *Correlation analysis related to some variables in the obese group. BMI: Body mass index, PCT: Procalcitonin, FGL-1: Fibrinogen-like protein-1, CRP: C-reactive protein, ABSI: A Body Shape Index, HDL: High density lipoprotein, MHR: Monocyte/HDL ratio, PLR: Platelet/lymphocyte ratio, LMR: Lymphocyte/monocyte ratio, WC: waist circumference, WHR: Waist-to-hip ratio, WHtR: Waist-to-height ratio, VAI: Visceral adiposity index, TG/HDL: Triglyceride/HDL ratio, LAPI: Lipid accumulation product index.*

[Abstract:1067]

## GRAVES' DISEASE AND BACKGROUND HASHIMOTO'S THYROIDITIS IN A PATIENT WITH TYPE 1 DIABETES

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**Case Description:** A male patient aged 21, with a known history of type 1 diabetes for 12 years and Hashimoto's thyroiditis for 4 years. He had been using Lt4 100 mcgr/day and basal-bolus insulin treatment. He presented with recently developed bilateral exophthalmos, sleep disturbances, and a feeling of discomfort during a routine examination. Physical examination was unremarkable other than exophthalmos and tremor.
**Clinical Hypothesis:** Thyrotoxicosis.
**Diagnostic Pathways:** TSH <0.005 mIU/L (R: 0.48-4.81), fT3: 11.5 ng/dL (R: 2.02-4.42), fT4: 3.10 ng/dL (R: 0.78-1.51). Laboratory analyses were consistent with iatrogenic thyrotoxicosis. However, we further evaluated patient for Graves disease due

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to exophthalmia. TSH-Receptor-Antibody: 4.08 IU/L (R: 0.00-1.75), Anti-TG: >4000 IU/mL (R: 0-115), Anti-TPO: >600 IU/mL (R: 0-34). Thyroid scintigraphy was performed, reporting a homogenous activity in both lobs and greatly increased compared to the submandibular glands. Thyroid US reported pseudo-nodular formations in the thyroid gland, characterized by diffuse hyperplasia. The patient was diagnosed with Graves' Disease based on clinical, laboratory, and imaging findings. Methimazole treatment was began at an appropriate dose.

**Discussion and Learning Points:** Graves disease and Hashimoto's thyroiditis are both organ-specific autoimmune diseases. Graves' disease is the most common cause of hyperthyroidism, while Hashimoto's thyroiditis is the most common cause of hypothyroidism. Both are more prevalent in women and are often associated with other autoimmune diseases, however their simultaneous occurrence is quite rare. In this rare entity of autoimmune endocrine disorder, patients with hypothyroidism can spontaneously develop Graves' disease. In this case report, we present a rare case known as "fluctuating hypo and hyperthyroidism".

*Keywords:* *thyrotoxicosis, Graves' disease, Hashimoto's disease, type 1 diabetes*

[Abstract:1108]

## FREQUENCY OF METABOLIC SYNDROME AND OBESITY IN PATIENTS WITH DIABETIC FOOT SYNDROME

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**Aim:** In this study, we investigated the frequency of Metabolic Syndrome (MetS) and obesity in Diabetic Foot Syndrome (DFS) patients.

**Methods:** Our retrospective study, 80 patients with DFS and 80 patients with diabetes but do not have DFS organized as a working group and control group. All the patients were hospitalized or applied to outpatient in our clinic between January 2015–January 2019. DFS patients were staged according to the Wagner classification. According to National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III) and International Diabetes Federation (IDF) criteria blood sugar, total cholesterol, HDL-C, LDL-C, triglyceride, blood pressure and waist circumference were collected and diagnosed with MetS. Body mass index (BMI) 18.5-24.9 kg/m$^2$ were defined as normal, 25.0-29.9 kg/m$^2$ overweight and over 30 kg/m$^2$ obese. The results were compared between two groups.

**Results:** All the patients are divided two groups which 80 has DFS and 80 without. When groups were compared among themselves, the rate of MetS (90%) in DFS patients according to the NCEP ATP III criteria was found statistically higher than the control group (72.5%). According to the IDF criteria, the incidence of MetS (95%) was statistically higher than the control group (76.3%) When two groups were compared for BMI, the rate of being obese (43.8%) in those with DFS was statistically higher than the control group (22.5%) As a result obesity and MetS are found to increase the risk of DFS.

**Conclusions:** Mets and its components and obesity are frequently encountered in DFS. As a result of these MetS, hypertension and obesity are risk factors for the DFS.

*Keywords:* *diabetic foot syndrome, metabolic syndrome, obesity*

[Abstract:1116]

## VITAMIN D HYPERVITAMINOSIS: A CASE REPORT

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A 64-year-old male with a history of hypertension, diabetes mellitus and alcoholic liver cirrhosis underwent liver transplantation a year ago. He presented to the emergency department with general discomfort, fatigue, weakness, tremors, itching, confusion, bra dypsychia, bilateral hip pain and a 4 kg weight loss over the past week. Physical examination revealed a general malaise with confusion, bradypsychia, generalized tremors and tenderness over both iliac crests.Laboratory analysis showed acute renal failure with a creatinine level of 3 mg/dl, corrected calcium of 17 mg/dl, potassium of 5.4 mmol/l, magnesium of 1.25 mg/dl, and hypercalciuria. Severe hypercalcemia prompted treatment with hydration, furosemide, corticosteroids, bisphosphonates and calcitonin. Despite these interventions, clinical improvement was not observed, and renal function deteriorated progressively, necessitating urgent haemodialysis. Further investigation revealed decreased parathyroid hormone (PTH) and elevated 25-hydroxyvitamin D levels (118 ng/ml). A review of the patient's history unveiled an error in medication administration: the patient had mistakenly taken a monthly dose of calcifediol (3 mg) weekly for three months, initiated to address an apparent vitamin D deficiency (1-25-hydroxyvitamin D <5ng/ml). This case represents severe hypercalcemia due to vitamin D hypervitaminosis.

In the presence of severe hypercalcemia, a thorough differential diagnosis is crucial, considering the uncommon possibility of vitamin D hypervitaminosis. Evaluation of vitamin D status should prioritize measuring 25-OH-vitamin D rather than 1-25-OH-vitamin D, as the latter is less stable and more variable. Caution is warranted in vitamin D supplementation to avoid serious side effects, emphasizing the importance of precise dosing.

*Keywords:* *vitamin D, 25-hydroxyvitamin D, hypercalcemia*

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[Abstract:1129]

## THE ROLE OF THE INTERNAL MEDICINE CONSULTATION UNIT (IMCU) IN THE MANAGEMENT OF HYPONATREMIAS IN A SECOND LEVEL HOSPITAL

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**Purpose:** To assess the role of the Internal Medicine Consultation Unit (IMCU) in the management of hyponatremia in the different hospital services.

**Methods:** Descriptive study of the consultations for hyponatremia to our service, between January 15 and April 15 of 2023.

**Findings:** Hyponatremia accounted for 10% of the consultations made to Internal Medicine (13 patients out of a total of 130, excluding Traumatology), the majority of which came from the surgical services (62%). 69% of hyponatremias were severe (<125 mEq/l); although only 23% of the patients were symptomatic. Regarding aetiology, 38% of the patients had prescribed drugs suspected of being involved (all had thiazides and antidepressants). Highlight postsurgical pain as an aetiology (present in 6 of the 8 patients who underwent surgery). About treatment, in addition to the withdrawal of the drugs involved, the most used therapies were 0.9% saline solution (69%) and water restriction (54%). Hypertonic saline was only used on one occasion, tolvaptan on none. In the majority of patients (77%) normalization of sodium levels was achieved, in an average time of 5 days.

**Conclusions:** Hyponatremia is the most common cause of electrolyte alterations in hospitalized patients. Although the majority of patients are asymptomatic, the relationship of hyponatremia has been demonstrated with an increase in hospital stay, the need for institutionalization upon discharge and mortality, as well as the risk of falls and osteoporotic fractures of the hip. All of these reasons underlie the importance of the IMCU, improving the different variables mentioned.

*Keywords:* *IMCU, hyponatremia, sodium*

[Abstract:1137]

## THE AMBIGUOUS DANGERS OF CUSHING SYNDROME: WHEN A MINOR SKIN INFECTION CASE UNFOLDS INTO AN ENDOCRINE EMERGENCY

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**Background:** Cushing syndrome is a rare endocrine disorder caused by chronically elevated serum cortisol levels. Hypercortisolism may be of iatrogenic or neoplastic cause and its diverse clinical manifestations constitute a diagnostic challenge. Under treatment, Cushing syndrome has excellent prognosis whereas its mortality is primarily the outcome of underlying malignancy, not hypercortisolism. Herein, we present an unusual case of persistent ACTH-dependent Cushing syndrome resulting in patient's death despite early diagnosis and treatment.

**Methods:** A 66-year-old man, with no relative medical history, was admitted to our clinic due to a 10-day history of bilateral lower extremity oedema and worsening right-foot pain. Upon examination, asymptomatic type I respiratory failure and skin infection was diagnosed and treated with broad spectrum antibiotics.

**Findings:** Chest X-ray demonstrated solely cardiomegaly, vascular triplex showed no deep vein thrombosis and blood chemistry revealed: CRP: 293 mg/L (0-5), K: 1.9 mmol/L (3.7-4.9), Na: 147 mmol/L (136-143), gGT: 563 U/L (5-36). Liver ultrasonography reported hepatomegaly, multiple focal lesions and steatosis. Full-body CT revealed a pulmonary nodule with liver metastasis, bilateral adrenal hyperplasia and pulmonary embolism. Dexamethasone-suppression test showed cortisol: 235 μg/dl (<1.8), ACTH: 183.5 pg/ml (<60). High doses of ketoconazole and metyrapone were administered awaiting osilodrostat/etomidate approval. Liver biopsy reported Neuroendocrine Small-Cell Lung Carcinoma confirming Ectopic ACTH-Cushing Syndrome. Cortisol levels reduced but were never normalized. Patient developed severe muscle weakness, psychosis and multiple respiratory infections resulting in sepsis, intubation and death.

**Conclusions:** Albeit Cushing syndrome is a treatable endocrinopathy may be proven fatal even under prompt treatment. Clinicians must be alert for its phenotypic and laboratory manifestations acting aggressively to prevent cortisol-induced lethal complications.

*Keywords:* *Cushing syndrome, hypercortisolism, endocrine emergency, hypokalaemia*

[Abstract:1139]

## BEHIND THE BLEED: UNRAVELLING ADRENAL HEMORRHAGE'S SECRET ALIAS - CARCINOMA UNVEILED

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Adrenal haemorrhage can be a life-threatening condition mostly found incidentally in an acutely sick patient. Etiologist include underlying diseases such as primary and secondary malignancies, infection, coagulopathy and occasionally abdominal trauma. Notably, there is lack of consensus pathway for management of adrenal haemorrhage. We present a case of a young male

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whose timely workup revealed an underlying adrenal cancer allowing for prompt treatment. A 33-year-old male presented with adrenal haemorrhage, complicated by a failed embolization attempt. Clinical and biochemical assessments ruled out specific adrenal disorders. Despite initial stabilization, a follow-up CT revealed an adrenal mass with celiac lymphadenopathy, leading to en bloc left adrenalectomy. Pathology confirmed a 7 cm adrenal cortical carcinoma, categorizing the patient as high risk for recurrence. Considering the unsuitability for radiotherapy, he commenced adjuvant cisplatin/etoposide with mitotane. While limited, available data suggests that this combination therapy may reduce recurrence risk in such cases. Regular follow-up is crucial for monitoring outcomes and potential recurrence. Adrenal haemorrhage can be a harbinger of very serious underlying conditions like pheochromocytoma and adrenal cortical cancer. Prompt initial and follow up imaging, if warranted, are very important in evaluation of the condition and planning of potential surgery. It is worth mentioning that a significant proportion of ACC are non-functional and en bloc adrenalectomy should be considered once other main etiologist like pheochromocytoma, infections and coagulopathy are confidently excluded.

1. Elhassan, Y.S. et al. (2022) "Approach to the patient with adrenal hemorrhage," The Journal of Clinical Endocrinology & Metabolism, 108(4), pp. 995–1006.

**Keywords:** *adrenal haemorrhage, adrenal carcinoma, adrenal mass*

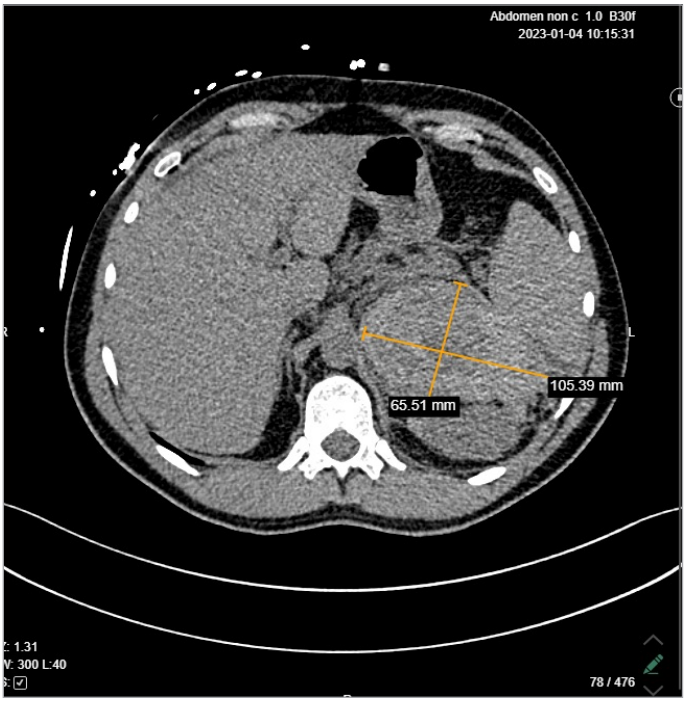


***Figure 1.*** *Adrenal haemorrhage.*

[Abstract:1144]

# CASE REPORT: ATEZOLIZUMAB-RELATED THYROIDITIS IN AN ELDERLY MALE WITH SQUAMOUS CELL LUNG CANCER

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In the rapidly evolving landscape of oncology, immunotherapy has emerged as a promising treatment option for various malignancies. However, patients may come across immune-related adverse events. These side effects encompass a spectrum of immune-mediated phenomena that can affect different organs and systems within the body. One particularly intriguing and relatively unexplored facet of these effects is their potential impact on thyroid function, potentially leading to a condition known as immune-related thyroiditis. A 74-year-old male patient diagnosed with known squamous-cell-lung-carcinoma, currently admitted to the oncology service, is planned to undergo one year of atezolizumab treatment following cisplatin-plus-vinorelbin, as determined by immunohistochemical examination revealing 80% positive staining for programmed death-ligand1 (PDL1). Investigations conducted prior to the 4$^{th}$ cycle of atezolizumab indicated thyroid-stimulating-hormone (TSH) <0.005 µIU/mL, free-thyroxin (sT4) 1.8 ng/dL, and free-triiodothyronine (sT3) 4.71 pg/mL. Thyroid function tests (TFTs) performed one month earlier had resulted in euthyroidism. Autoimmune thyroid antibodies were negative, and the physical examination did not reveal thyrotoxicosis symptoms such as tremors or palpitations. Due to the absence of thyrotoxicosis symptoms, anti-thyroid medication was not initiated. Thyroid ultrasonography demonstrated a normal-sized thyroid gland with spongiform structures in both lobes (TI-RADS1) and isoechoic structures in the right lobe (TI-RADS2) containing nodules. A thyroid scintigraphy revealed heterogeneous active substance distribution and low uptake, leading to the initial consideration of silent thyroiditis. Followed up TFTs became normal in a couple months. TSH resulted 1.8 µIU/mL, sT4 resulted 1.02 ng/dL. While thyroiditis related to immunotherapy is increasingly prevalent, this case serves as a call to action for heightened awareness and ongoing exploration into the intricacies of immune-related thyroid dysfunction in the context of evolving cancer therapies.

**Keywords:** *thyroiditis, immunotoxicity, atezolizumab*

| Parameters | Results |
|---|---|
| Anti Thyroglobulin (Anti-Tg) Antibody (IU/mL) | 35 |
| Anti Thyroid Peroxidase (AntiTPO) Antibody (IU/mL) | < 9 |
| Anti TSH receptor antibody (TRAK) | 1 |

***Table 1.*** *Autoimmune thyroid markers.*

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[Abstract:1172]

## ISGTL2 EUGLYCEMIC DIABETIC KETOACIDOSIS

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Diabetes Mellitus (DM) type II generates a high morbimortality associated with the disease and the adverse effects produced by the treatment. We present an 81-year-old patient with arterial hypertension treated with furosemide and type II DM treated with metformin/dapagliflozin. The patient came to the emergency department with asthenia and generalized weakness of one week's evolution. Previously, he showed refusal to eat and reduced fluid intake. Examination showed a tendency to sleep, the rest of the neurological examination was normal. Analytically, glucose was normal (114 mg/dL), ions without alterations and venous gasometry with metabolic acidosis (pH 7.15, bicarbonate 9.3 mmol/L, $CO_2$ 10.1 mmol/L). Urine systemic analysis showed normal pH, high amount of glucose and ketone bodies. A differential diagnosis was made between type IV renal tubular acidosis due to DM and euglycemic diabetic ketoacidosis due to ISGTL2. The final diagnosis was diabetic euglycemic ketoacidosis caused by dapagliflozin, due to the absence of hyperkalaemia and normal urinary pH. Treatment with intravenous bicarbonate is started and dapagliflozin is withdrawn. Metabolic acidosis improves progressively, as does the patient's clinical status. iSGLT2 can trigger euglycemic diabetic ketoacidosis, especially in patients with decreased intake, intercurrent infectious processes, habitual drinkers or in inadequate titrations. Therefore, it is important to take this into account in the differential diagnosis of metabolic acidosis in a patient with type II DM under treatment with iSGLT2.

*Keywords: ISGTL2 ketoacidosis diabetic*

[Abstract:1174]

## TYPE 2 DIABETES MELLITUS AND SARCOPENIA: A BIDIRECTIONAL RELATIONSHIP

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**Introduction:** Type 2 diabetes mellitus (T2DM) is characterized by insulin resistance, inflammation, advanced glycation end-product accumulation and increased oxidative stress. These characteristics can negatively affect various aspects of muscle health, sarcopenia is a multifunctional geriatric disorder defined as a reduction in muscle mass, strength, and function (2). Sarcopenia has been implicated as both a cause and consequence of T2DM. The prevalence of sarcopenia in type 2 DM was significantly higher than in non-diabetics: OR 1.55; 95% CI 1.25-1.91; $p < 0.001$; and the prevalence increases with age (3).

**Methods:** Descriptive study of 30 consecutive patients with DM2 treated in Internal Medicine in June-September 2023. Sarcopenia using SARC-F and dynamometry and malnutrition screening was determined using the MUST and GLIM criteria.

**Results:** Of the 30 patients included 56.7% (17) were men. The mean age was 74 years (±10) and the BMI was 26.4 K/m$^2$, 42.9% of the patients included had sarcopenia according to SARC-F, with 46.7% (14) having altered dynamometry according to age and sex. According to the MUST, 34.5% (10) had a high risk of malnutrition, 37.9% (11) had a moderate risk and 27.6 (8) had a low risk, according to GLIM criteria, 16.7% (5) met the criteria for severe malnutrition, 30% (9) moderate malnutrition and 53.3% (16) did not present malnutrition criteria.

**Conclusions:** Our study demonstrates that the prevalence of sarcopenia and malnutrition in diabetic patients treated in a hospital environment is high.

*Keywords: type 2 diabetes mellitus, sarcopenia, malnutrition*

[Abstract:1189]

## THE RELATIONSHIP OF DYNAPENIC ABDOMINAL OBESITY AND THYROID FUNCTIONS IN INDIVIDUALS WITH AND WITHOUT OBESITY

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**Introduction:** Dynapenic abdominal obesity (DAO) is characterized by decreased muscle strength and increased abdominal fat mass, leading physical dysfunction, increased morbidity and mortality. Impaired thyroid function is common in obesity. In this study, we aimed to investigate the relationship between DAO and impaired thyroid function in individuals with and without obesity.

**Methods:** 76 randomly chosen patients from our obesity centre without thyroid disease/treatment and age-gender matched 30 people without obesity, totalling 106 participants were included in the study. Height, weight, WC, hand grip strength (HGS) and TSH levels were measured, BMI and DAO were calculated. Results were evaluated using SPSS.

**Results:** In obesity group: there was no significant difference between DAO (+) and (-) groups for age, gender, BMI or WC. In DAO (+) group HGS was lower than DAO (-) group. In non-obesity group: There was no significant difference between DAO (+) and (-) groups for age, or gender. BMI and WC were higher and HGS was lower in DAO (+) group than DAO (-) group. TSH did not show a significant difference between DAO (+) and (-) individuals in both groups.

**Conclusions:** Our study showed that abdominal obesity might be present and DAO/altered muscle functions might be seen in

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people even with normal BMI. However, there was no difference in TSH between the groups which might be due to small number of patients in obesity (-) DAO (-) group. Considering accompanying diseases and complications of obesity, it is obvious that parameters other than BMI, like WC and other new parameters in literature, are needed for obesity evaluation and management.

**Keywords:** *dynapenic abdominal obesity, thyroid functions, obesity*

[Abstract:1192]

## ABIRATERONE-INDUCED SEVERE HYPOKALEMIA AND HYPERTENSION IN A PROSTATE CANCER PATIENT: A RARE SIDE EFFECT

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**Case Description:** A 73-year-old male presented with left arm weakness. He had a history of coronary artery bypass grafting and hypertension. Three years ago, he received a prostate cancer diagnosis. He underwent an orchiectomy, received leuprolide plus bicalutamide, followed by docetaxel treatment. He had been receiving androgen-deprivation treatment abiraterone for the past year. His regular medications included acetylsalicylic acid, tamsulosin, and doxazosin. Upon examination, he had left arm paresis and a high blood pressure of 200/160 mmHg. He was admitted to the neurology department with a diagnosis of right middle cerebral artery infarction. The patient revealed severe hypokalaemia (2.2 mmol/L) with normal magnesium levels. Potassium in the spot urine was 34 mmol/L. Plasma renin activity of <0.1 ng/mL/hr with normal aldosterone levels of 7.9 ng/mL (3-16). The 24-hour urine catecholamines were within normal limits. The basal cortisol level measured 8.5 µg/dL, the ACTH level was 123 pg/mL (7-63), and a normal response to the 1 mcg synthetic ACTH test was observed. Low total testosterone (0.03 ng/ml; 1.3–8.9) accompanied low dehydroepiandrosterone levels (19 µg/dl; 80–560). Abiraterone-induced hypokalaemia was suspected. Upon discontinuing abiraterone and starting prednisone, potassium levels normalized.

**Conclusions:** Abiraterone is an irreversible inhibitor of the 17α-hydroxylase enzyme. Consequently, levels of androgen and dehydroepiandrosterone are lowered. On the other hand, preventing corticosteroid synthesis leads to increased ACTH levels. That, in turn, causes mineralocorticoid excess syndrome characterized by fluid retention, hypertension, and hypokalaemia. To prevent this, concurrent glucocorticoid use is standard practice.

**Keywords:** *abiraterone, prostate cancer, hypokalaemia, steroid*

[Abstract:1195]

## HISTORY REVISITED: SEVERE HYPONATREMIA IN A 57-YEAR-OLD WOMAN WITH EARLY MENOPAUSE

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**Introduction:** Hyponatremia among hospitalized patients is very common, and can be caused by many factors. The case below illustrates the importance of comprehensive history taking in order to aid in diagnosis and management.

**Case Description:** A 57-year-old female came in for weakness of 3-week duration. She initially had fever and cough, then became weak, with vomiting episodes. Initial consult with her primary physician revealed severe hyponatremia and anaemia, and was advised ED consult. She was weak and slow to respond- which her family reported was the norm. She had decreasing haemoglobin trends and persistent severe hyponatremia despite intervention. Several subspecialty services pursued various work-up, until they noted decreased FT3 and FT4 levels, hence they referred to Endocrinology on the 12$^{th}$ hospital day.Initially not elicited by the services, they found out that in her 5$^{th}$ pregnancy, she had post-partum haemorrhage and blood transfusions. In her 6$^{th}$ pregnancy, she was unable to breastfeed, and had no resumption of menses post-partum, experiencing early menopause at 39 years old. Hormonal work-up revealed low cortisol, FSH, LH, and cranial MRI showed empty sella. This confirmed the diagnosis of panhypopituitarism from Sheehan syndrome, which caused her persistent severe hyponatremia. Sodium was corrected after she was started on steroid and thyroid hormone replacement.

**Discussion:** Sheehan syndrome is the necrosis of cells in the pituitary gland following significant post-partum bleeding, and can be diagnosed months to years after initial vascular injury. High clinical suspicion relies on complete history, and is confirmed by evaluation of anterior pituitary function.

**Keywords:** *hyponatremia, anaemia, panhypopituitarism, Sheehan syndrome, history taking*

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[Abstract:1206]

# NAVIGATING DIAGNOSTIC CHALLENGES: EUGLYCEMIC DIABETIC KETOACIDOSIS

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**Background:** Euglycemic diabetic ketoacidosis (EDKA) is a rare yet serious complication associated with sodium-glucose reuptake inhibitors (SGLT-2i), particularly when triggered by factors like severe infections or surgery. This report aims to highlight a case of EDKA resulting from the use of empagliflozin in the perioperative period.

**Case Presentation:** A 54-year-old woman with a 16-year history of type 2 diabetes mellitus and dyslipidaemia was admitted to the intensive care unit with colicky abdominal pain, nausea, vomiting, and tachypnea 4 days following a breast reduction surgery. A venous blood gas analysis revealed the following.

**Results:** pH - 7.077, Glucose - 157 mg/dL, $pCO_2$ - 20.7 mmHg, lactate - 1.7 mmol/L, $cHCO_3$ - 7.9 mmol/L, base excess -23.8. A complete urinalysis disclosed 3+ ketonuria. Patient anamnesis revealed that the patient has been using empagliflozin, which was maintained throughout the perioperative period. The preliminary diagnosis was empagliflozin-associated EDKA precipitated by surgery. Biochemical tests and radiological imaging ruled out other potential causes of EDKA, including infection. Intravenous insulin along with isotonic fluid and 5% dextrose infusions were started. Treatment was tailored based on frequent monitoring of blood gas analysis and glucose measurements. The patient's acidosis resolved within 24 hours.

**Conclusions:** EDKA can be a diagnostic challenge that mirrors the presentation of DKA, yet with normoglycemia. Medication history should carefully be reviewed in diabetic patients undergoing surgery, and SGLT-2is should be discontinued pre-operatively. Even with the appropriate cessation of SGLT-2 inhibitors before surgery, these patients should still be closely monitored for EDKA in the postoperative period.

***Keywords:*** *SGLT-2 inhibitors, euglycemic diabetic ketoacidosis, diabetes mellitus*

[Abstract:1239]

# SARCOPENIA, DIABETES MELLITUS TYPE 2 AND MALNUTRITION COMPLEX RELATIONSHIP

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**Introduction:** Type 2 diabetes mellitus (T2DM) is characterized by insulin resistance, inflammation, advanced glycation end-product accumulation and increased oxidative stress. These characteristics can negatively affect various aspects of muscle health. Sarcopenia is a multifunctional geriatric disorder defined as a reduction in muscle mass, strength, and function (2). Sarcopenia has been implicated as both a cause and consequence of T2DM. The prevalence of sarcopenia in type 2 DM was significantly higher than in non-diabetics: OR 1.55; 95% CI 1.25-1.91; $p < 0.001$; and the prevalence increases with age (3).

**Methods:** Descriptive study of 30 consecutive patients with DM2 treated in Internal Medicine in June-September 2023. Sarcopenia using SARC-F and dynamometry and malnutrition screening was determined using the MUST and GLIM criteria.

**Results:** Of the 30 patients included 56.7% (17) were men. The mean age was 74 years (±10) and the BMI was 26.4 K/m$^2$, 42.9% of the patients included had sarcopenia according to SARC-F, with 46.7% (14) having altered dynamometry according to age and sex. According to the MUST, 34.5% (10) had a high risk of malnutrition, 37.9% (11) had a moderate risk and 27.6 (8) had a low risk, according to GLIM criteria, 16.7% (5) met the criteria for severe malnutrition, 30% (9) moderate malnutrition and 53.3% (16) did not present malnutrition criteria.

**Conclusions:** Our study demonstrates that the prevalence of sarcopenia and malnutrition in diabetic patients treated in a hospital environment is high.

***Keywords:*** *type 2 diabetes mellitus, sarcopenia, malnutrition*

 **DOI:** 10.12890/2024_V11Sup1

[Abstract:1254]

# FACTORS ASSOCIATED WITH PERSISTENT POSTPARTUM HYPERGLYCEMIA AMONG WOMEN WITH GESTATIONAL DIABETES MELLITUS

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**Objective:** The aim of this study was to determine the prevalence of postpartum hyperglycaemia (diabetes mellitus [DM] or dysglycemia) in patients with gestational DM (GDM) and associated factors.

**Methods:** We identified 500 women diagnosed with gestational DM with oral glucose tolerance test (OGTT) in the medical records of our tertiary centre. After exclusions, 239 subjects in their postpartum period agreed to participate and underwent fasting blood glucose (FBG) and glycolyzed haemoglobin (HbA1c) measurements. The primary endpoint was the prevalence of postpartum hyperglycaemia defined as DM or deglycation (HbA1c 5.7 to 6.5 or impaired FG).

**Results:** The mean age±SD was 32.3±5.4. DM, dysglycemia and normoglycemia were found by 11% (n=27), 54% (n=129) and 35% (n=83). Subjects with postpartum hyperglycaemia (DM or dysglycemia) were older, had higher body weight, body mass index (BMI), pre-, during and postpartum obesity and more preterm labour history than those with normoglycemia. Postpartum breastfeeding less than 6 months (OR: 4.16, 95CI: 1.38 to 12.54), higher level of initial glucose on OGTT (OR: 1.07, 95CI: 1.02 to 1.12), earlier gestational week (OR: 2.84, 95CI: 1.93 to 4.18), higher BMI at diagnosis of GDM (OR: 1.15, 95CI: 1.03 to 1.29) and higher GDM age (OR: 1.24, 95CI: 1.13 to 1.36) were the predictors of postpartum hyperglycaemia.

**Conclusions:** This study showed that hyperglycaemia persists in a significant proportion of women with a recent GDM diagnosis. Shorter postpartum breastfeeding showed the strongest association with postpartum hyperglycaemia.

*Keywords:* *gestational diabetes mellitus, postpartum hyperglycemia, diabetes mellitus, bmi, ogtt*

[Abstract:1278]

# THE RELATIONSHIP BETWEEN MALIGNANCY AND PREOPERATIVE ULTRASONOGRAPHY NODULE SIZE IN PATIENTS WITH ATYPIA OF UNDETERMINED SIGNIFICANCE IDENTIFIED AT LEAST ONCE AFTER FINE NEEDLE ASPIRATION BIOPSY

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**Objective:** The detection of atypia of undetermined significance (AUS) after fine needle aspiration biopsy (FNAB) is a significant challenge in the follow-up of thyroid nodules. The malignancy rate of thyroid nodules identified with AUS/FLUS cytology ranges from 13.2% to 25.3%, and nodule size can be used to predict malignancy risk. This study aimed to identify data related to malignancy in patients with thyroid nodules who underwent FNAB twice without obtaining a diagnosis and were identified with AUS at least once.

**Methods:** Patients who were evaluated for thyroid nodules and underwent surgery due to the detection of AUS on thyroid FNAB were included in the study.

**Results:** A total of 38 patients (F/M: 30/8) were included in the study, with a median age of 45.00. There were 18 patients diagnosed with thyroid cancer and 20 patients with benign pathology. The nodules of patients diagnosed with thyroid cancer were smaller than those with benign pathology(p=0.018). There was no significant difference in terms of TIRADS score (p=0.156). Positive correlations were found between having thyroid carcinoma and having a nodule smaller than 2 cm on preoperative ultrasound (r=0.440, p=0.006). Multiple regression analysis revealed an independent association between a nodule smaller than 2 cm on preoperative ultrasound and thyroid carcinoma in postoperative pathological examination.

**Discussion:** The data suggest that nodule size may be significant indicator in the evaluation of AUS. Prospective studies involving more patients are needed to better understand the risk of malignancy in thyroid nodules identified with AUS/FLUS in FNAB.

*Keywords:* *thyroid, nodule, AUS, atypia, undetermined, significance*

 **DOI:** 10.12890/2024_V11Sup1

| | Patients with Thyroid Carcinoma (n=18) | Patients with Benign Pathology (n=20) | P-Value |
|---|---|---|---|
| Gender (F/M) | 14/4 | 16/4 | 0.867 |
| Age (years) | 44.00 (13.00) * | 45.50 (14.50)* | 0.073 |
| Preoperative Nodule Size (mm) | 18.50 (18.00) * | 26.50 (21.30)* | 0.431 |
| Ultrasonography Nodule Size<br><2 cm (n/%)<br>2-4 cm (n/%)<br>>4 cm (n/%) | 9 (50.0%)<br>7 (38.9%)<br>2 (11.1%) | 2 (10.0%)<br>11 (55.0%)<br>7 (35.0%) | 0.018 |
| Ultrasonography Hypoechoic/Isoechoic | 9/9 | 8/12 | 0.536 |
| TIRADS Score<br>3 (n/%)<br>4 (n/%)<br>5 (n/%) | 7 (38.9%)<br>9 (50.0%)<br>2 (11.2%) | 14 (70.0%)<br>5 (25.0%)<br>1 (5.0%) | 0.156 |
| Platelet/Lymphocyte Ratio | 104.14 (60.84) * | 137.51 (65.63)* | 0.031 |
| Neutrophil/Lymphocyte Ratio | 1.84 (2.22) * | 2.93 (2.41)* | 0.051 |
| TSH (mIU/L) | 2.00 (2.15) * | 1.21 (1.85)* | 0.474 |
| Free T4 (ng/dL) | 0.99 (0.23) * | 1.10 (0.35)* | 0.567 |
| Free T3 (pg/ml) | 3.20 (0.71) * | 3.17 (0.63)* | 0.567 |

***Table 1.*** *Demographic and Biochemical Characteristics of Patients. *Median (IQR).*

| Models | Dependent Variable | Independent Variables | Odds Ratio | P-Value (Model) | $R^2$ |
|---|---|---|---|---|---|
| Univariate Model | Thyroid Carcinoma Detection | Preoperative Nodule Size <2 cm | 5.681 | <0.001 | 0.138 |
| Univariate Model | Thyroid Carcinoma Detection | Platelet/Neutrophil Ratio | 4.132 | 0.012 | 0.252 |
| Age and Gender Adjusted Model | Thyroid Carcinoma Detection | Preoperative Usg Nodule Size <2 cm<br>Age<br>Gender | 5.882<br>0.987<br>0.954 | <0.001<br>0.480<br>0.935 | 0.143 |
| Age and Gender Adjusted Model | Thyroid Carcinoma Detection | Platelet/Neutrophil Ratio<br>Age<br>Gender | 1.015<br>0.989<br>0.908 | 0.075<br>0.759<br>0.908 | 0.166 |
| Model 1 | Thyroid Carcinoma Detection | Preoperative Usg Nodule Size <2 cm<br>Platelet/Neutrophil Ratio<br>Age<br>Gender | 5.494<br>1.002<br>0.992<br>0.945 | 0.001<br>0.647<br>0.676<br>0.926 | 0.144 |
| Model 2 | Thyroid Carcinoma Detection | Preoperative Usg Nodule Size <2 cm<br>Platelet/Neutrophil Ratio<br>Age<br>Gender<br>TIRADS score | 5.376<br>1.002<br>0.885<br>0.418<br>1.343 | 0.002<br>0.684<br>0.841<br>0.450<br>0.732 | 0.174 |

***Table 2.*** *Multiple Regression Analysis Models.*

[Abstract:1280]

# ABIRATERONE-INDUCED SEVERE HYPOKALEMIA IN A PROSTATE CANCER PATIENT: A RARE SIDE EFFECT

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**Case Description:** A 73-year-old male presented with left arm weakness. He had a history of coronary artery bypass grafting and hypertension. Three years ago, he received a prostate cancer diagnosis. He underwent an orchiectomy, received leuprolide plus bicalutamide, followed by docetaxel treatment. He had been receiving androgen-deprivating treatment abiraterone for the past year. His regular medications included acetylsalicylic acid, tamsulosin, and doxazosin. Upon examination, he had left arm paresis and a high blood pressure of 200/160 mmHg. He was admitted to the neurology department with a diagnosis of right middle cerebral artery infarction. The patient revealed severe hypokalaemia (2.2 mmol/L) with normal magnesium levels. Potassium in the spot urine was 34 mmol/L. Plasma renin activity of <0.1 ng/mL/hr with normal aldosterone levels of 7.9 ng/mL (3-16). The 24-hour urine catecholamines were within normal limits. The basal cortisol level measured 8.5 µg/dL, the ACTH level was 123 pg/mL (7-63), and a normal response to the 1 mcg synthetic ACTH test were observed. Low total testosterone (0.03 ng/ml; 1.3–8.9) accompanied low dehydroepiandrosterone levels (19 µg/dl; 80–560). Abiraterone-induced hypokalaemia was suspected. Upon discontinuing abiraterone and starting prednisone, potassium levels normalized.

**Conclusions:** Abiraterone is an irreversible inhibitor of the 17α-hydroxylase enzyme. Consequently, levels of androgen and dehydroepiandrosterone are lowered. On the other hand, preventing corticosteroid synthesis leads to increased ACTH levels. This, in turn, causes mineralocorticoid excess syndrome characterized by fluid retention, hypertension, and hypokalaemia. To prevent this, concurrent glucocorticoid use is standard practice.

**Keywords:** *abiraterone, hypokalaemia, steroid*

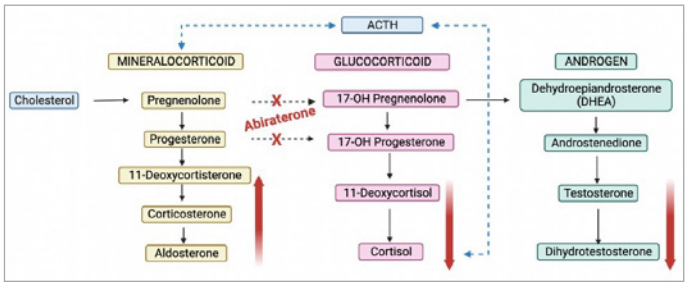


***Figure 1.*** *Steroidogenesis.*
*Abiraterone inhibits 17α-hydroxylase, lowering cortisol and androgen levels. Low cortisol causes an excess of mineralocorticoids by raising ACTH.*

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[Abstract:1288]

# OBSERVATIONAL STUDY ON THE PREVALENCE OF OVERWEIGHT AND OBESITY IN PATIENTS AGED 18 AND OLDER, SEEN IN GENERAL MEDICINE, DIABETOLOGY, INTERNAL MEDICINE, AND ENDOCRINOLOGY CONSULTATIONS IN BOTH PUBLIC AND PRIVATE SECTORS IN ALGERIA

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**Objectives:** Assess overweight and obesity prevalence for patients aged 18 years and older, seen in general medicine, endocrinology and diabetology and internal medicine consultations in both public and private sectors in Algeria.

**Methods:** A national, multicentric, observational, cross-sectional epidemiological study was conducted with a representative sample of general practitioners and specialists in internal medicine, diabetology, and endocrinology in both public and private sectors in Algeria. Patients were selected regardless of their body mass index (BMI).

**Results:** 3547 subjects were enrolled in the study by endocrinologists and diabetologists (38.1%), general practitioners (31.1%), and internists (30.8%) from the public and private sectors in 5 health regions in Algeria. 73% of the included patients had a BMI ≥ 25 Kg/m$^2$. 36% were overweight (pre-obesity), and 37% were obese. The most common associated pathologies in overweight and obese patients were type 2 diabetes (53.6%, 50.1%), hypertension (37.4%, 47.7%), endocrine diseases (24.9%, 30.9%), dyslipidaemia (22.2%, 28.1%), and osteoarthritis (15%, 25.2%). The current strategy for managing overweight/obesity is primarily based on diet and physical activity.

**Conclusions:** This study is the first representative analysis at the national level, aiming to estimate overweight and obesity prevalence. The frequencies of overweight and obesity, along with associated pathologies, predict a future growth in healthcare expenses. These results provide additional evidence of the need to establish strategies to deal with this issue, in order to modify the environment to be less conducive to weight gain and sedentary behaviour.

**Keywords:** *overweight, obesity, BMI, prevalence*

[Abstract:1301]

# POTASSIUM LEAKING. ABOUT A CLINICAL CASE

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**Case Description:** We present a 71-year-old man with cardiovascular history who arrived at the Emergency Room with progressive dyspnoea lasting two months and oedema in lower limbs despite antibiotic and depletive therapy. Physical examination revealed blood pressure of 194/84 mmHg, pulmonary auscultation with generalized hypophonesis and oedema in both lower limbs.Blood tests showed elevation of acute-phase reactants and N-terminal probain natriuretic peptide, hypokalaemia metabolic alkalosis. Chest X-ray showed water overload and bilateral opacities probably related to pneumonic foci. Depletive and broad-spectrum antibiotic treatment were initiated accompanied by potassium supplements, spironolactone and acetazolamide. Antihypertensive and insulin therapy was adjusted due to poor control of blood pressure and high glucose levels. Tumour markers revealed high levels of carcinoembyonic antigen and CYFRA 21-1 and body-CT scan showed image compatible with carcinoma bronchogenic that was confirmed with the biopsy. Hormonal study demonstrated elevation of adrenocorticotropic hormone, chromogranin A, hydroxyndoleacetic acid in 24 hour urine and cortisol after dexamethasone 1 mg was of 70.3 ug/dL.

**Clinical Hypothesis:** Given the present medical history we considered the possibility of ACTH-depend Cushing syndrome of ectopic origin.

**Diagnostic Pathways:** The absence of improvement in pneumonia despite antibiotic therapy, alkalosis hypokalemic metabolic refractory, difficulty to control hypertension and hyperglycaemia, made us suspect Cushing´s syndrome paraneoplastic.

**Discussion and Learning Points:** This case reflects the importance of suspecting and diagnosing paraneoplastic syndromes despite the absence of clear constitutional syndrome and non-specificity of signs and symptoms and therefore, be able to start specific treatment and prevent complications derived from the disease.

**Keywords:** *hypokalemic metabolic alkalosis, arterial hypertension, ectopic Cushing syndrome*

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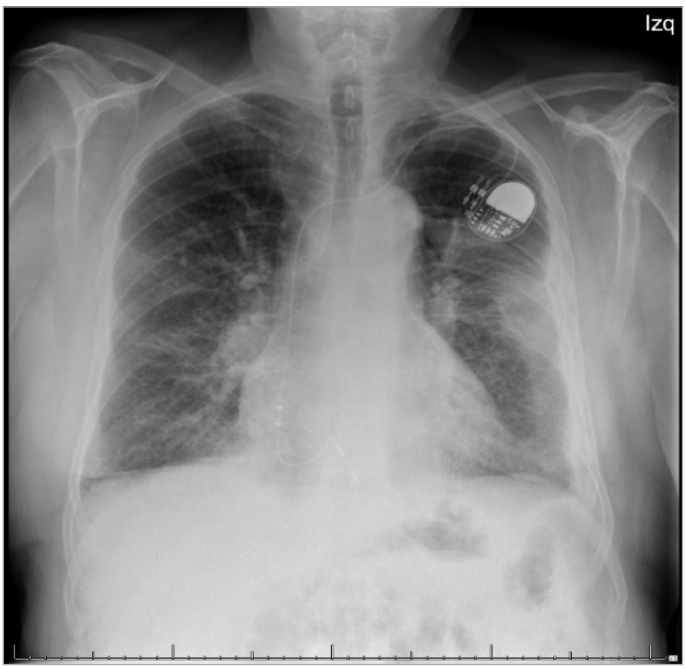


*Figure 1. Chest x-ray corresponding to admission. Postero-anterior view. It showed data of water overload and bilateral opacities probably related to pneumonic foci.*

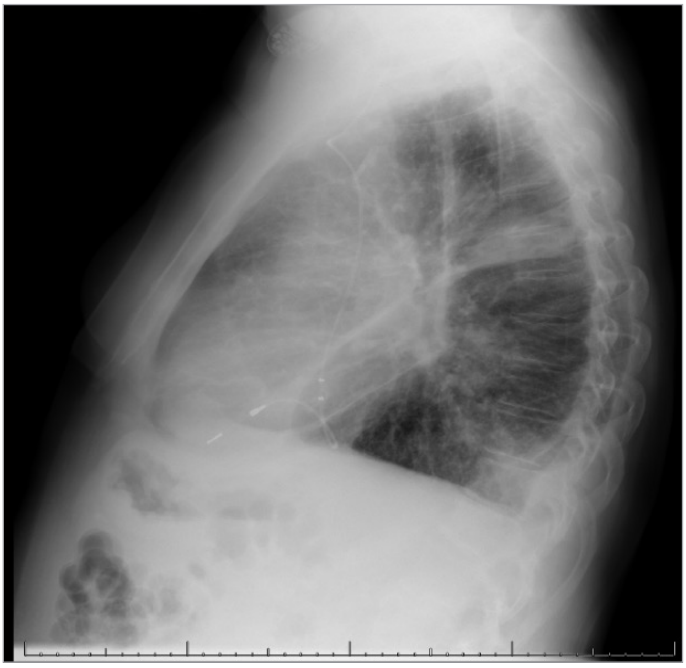

*Figure 2. Chest x-ray corresponding to admission. Lateral view. It showed data of water overload and bilateral opacities probably related to pneumonic foci.*

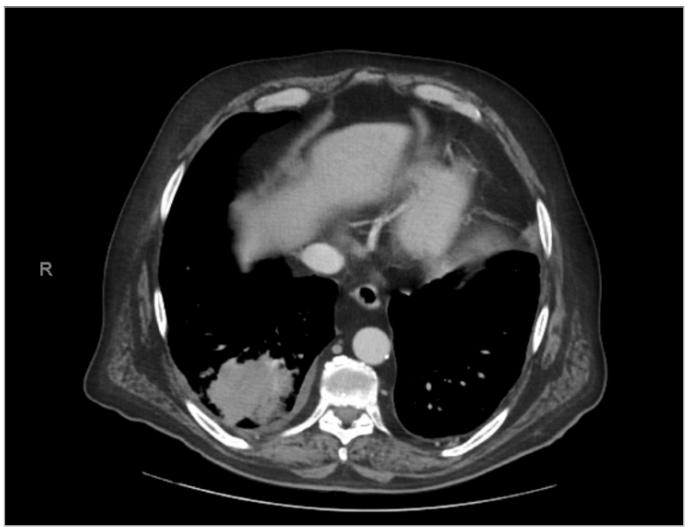


*Figure 3. Body-CT scan. It showed image compatible with right lower lobar bronchogenic carcinoma.*

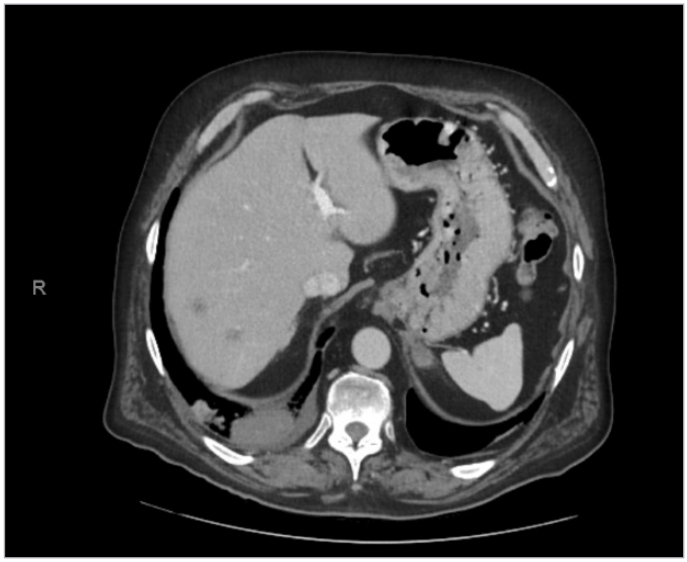


*Figure 4. Body-CT scan. It showed carcinomatous lymphangitis, multiple focal liver lesions and nodules in both adrenal glands suggested metastasis.*

[Abstract:1308]

## A CASE OF SEPTIC SHOCK FROM SOFT TISSUE INFECTION AT THE SITE OF INSULIN PUMP APPLICATION

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**Purpose:** The treatment of Type 1 diabetes Mellitus with insulin pumps has made significant progress in recent years. New technology pumps allow for more efficient blood sugar regulation along with significant patient flexibility and independence.



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Usually the use of insulin pumps is not accompanied by significant complications regarding their placement and application.

**Methods:** A 51-year-old woman, suffering from T1DM and treated with an insulin pump since 10 years, presented with a fever up to 39°C with chills, accompanying vomiting and redness at the point of application of the insulin pump. She showed a picture of septic shock with tachypnoea and blood pressure 75/45 mmHg. Upper/lower abdominal CT showed intense opacification of subcutaneous fat mainly in the anterior abdomen with fluid collections.

**Results:** The patient was admitted and treated with an advanced antibiotic regimen and supported with oxygen therapy and intravenous sera for a total of 26 days. In a repeat CT scan 14 days after the initial one, diffuse extensive inflammation (dimensions 14 x 11 x 6 cm) of the anterior abdominal wall with involvement of the rectus abdominis muscle was observed. This finding in the subsequent ultrasound follow-up showed a continuous reduction in its dimensions with a simultaneous improvement in the patient's clinical condition, without the need for drainage. The patient was discharged and attended regular follow-up examinations.

**Conclusions:** Patients with an insulin pump should be sensitized regarding the meticulous control of the pump application site, as in rare cases a serious soft tissue infection may occur which may even threaten their life.

*Keywords:* *type 1 diabetes mellitus, insulin pump, soft tissue infection*

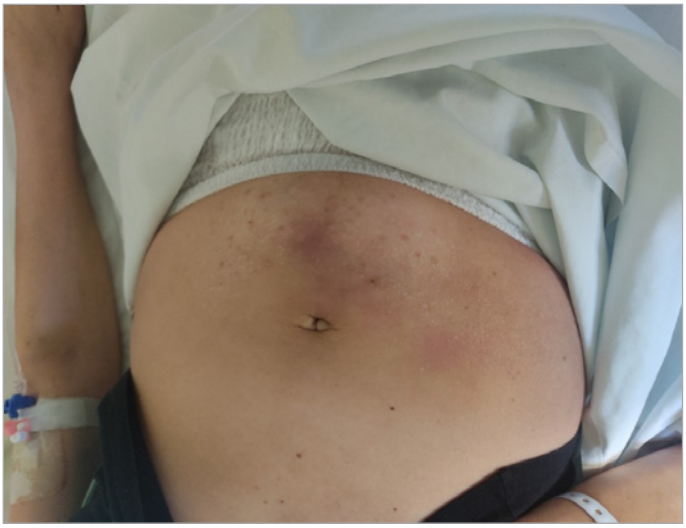

***Figure 1.*** *Clinical image of infection site.*

[Abstract:1310]

## PIOGLITAZONE AS AN ANTIOXIDANT AGENT: A PRECLINICAL STUDY

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**Introduction:** Pioglitazone is an oral antidiabetic agent from the thiazolidinedione group and is a synthetic ligand for PPARs. It has long been known that it can increase glucose uptake and use in peripheral organs and reduce insulin resistance by reducing gluconeogenesis in the liver. TRX1 is a small redox-active protein. In this study, it was planned to investigate the antioxidant effect of pioglitazone on skeletal muscle.

**Methods:** Three-month-old male Wistar Albino rats (200-250 g) were used. Animals were maintained under standard conditions (12-h light/dark cycle, 24±2°C room temperature, 35–60% humidity, randomly divided into three groups of 8 mice each. Control group (Con); consumed standard laboratory diet and drinking water. MS group; drinking water containing 32% sucrose (935 mM) for 20 weeks. MS-PGZ; pioglitazone (30 mg/kg/day) for the last 2 weeks. At the end of the experiment, the animals were anesthetized after fasting for 12 hours. Skeletal muscle tissues were homogenized for measurement of total antioxidant status, total oxidant status and TRX1 levels. An approval report was received from Ankara University Animal Experiments Local Ethics Committee for all animal procedures and experiments applied in our study (2012-5-35 and 2015-10-125).

**Results:** Oxidative stress status increased in the metabolic syndrome group, but pioglitazone reduced the oxidative stress level in skeletal muscle. In addition, while thioredoxin 1 level was found to be decreased in the metabolic syndrome group, pioglitazone application increased this level.

**Conclusions:** It was determined that oxidative stress increased in MS and pioglitazone treatment had antioxidant effect on skeletal muscle.

*Keywords:* *pioglitazone, antioxidant, metabolic syndrome*

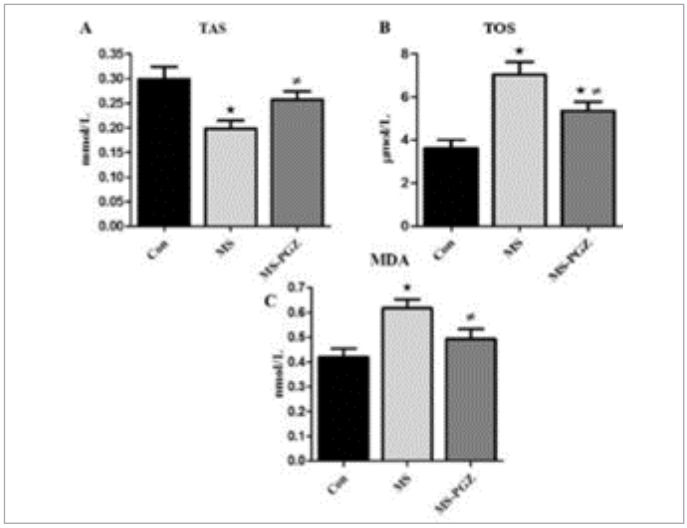


***Figure 1.*** *TAS and TOS in groups.*
*(A) Total antioxidant status (TAS) change, (B) Total oxidant status (TOS) change, (C) malondialdehyde (MDA) change in the experimental groups. Bar graphs are given as mean±SEM and n=8 in each experimental group (Con, MS, MS-PGZ). *p<0.05 means compared to control, ≠p<0.05 means compared to MS.*



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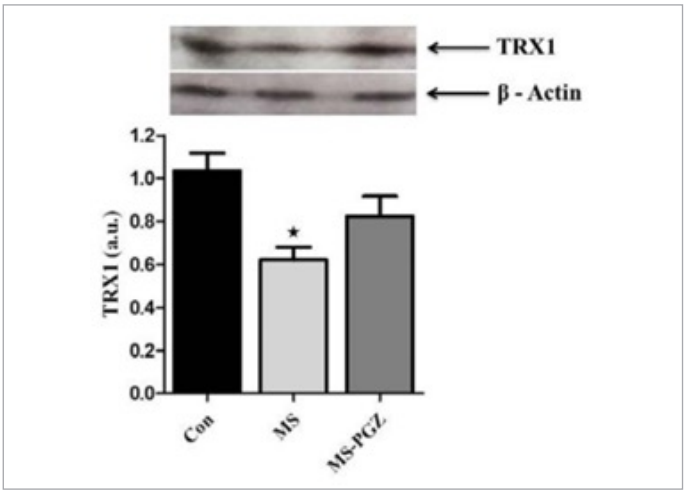


***Figure 2.*** *TRX levels of groups.*
*Thioredoxin (TRX1) Western Blot results of skeletal muscles of experimental groups. Densitometric results are expressed as percentage of the control (beta-actin bands) of each experimental group. Bar graphs are given as mean±SEM and n=8 in each experimental group (Con, MS, MS-PGZ). *p<0.05 indicates compared to control.*

[Abstract:1317]

## RECURRENT VOMITING AS AN UNUSUAL PRESENTATION OF HYPERTHYROIDISM IN A PATIENT WITH A CHIARI TYPE 1 MALFORMATION: A CASE REPORT AND REVIEW OF LITERATURE

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In this case study, we discuss an unusual presentation of hyperthyroidism in a 35-year-old female with Chiari type 1 Malformation. Initially experiencing headaches, tremors, and dizziness, the patient consulted multiple specialists without a clear diagnosis. Later, she developed recurrent vomiting unrelated to food intake, significant weight loss (12 kg), and muscle weakness, leading to her hospitalization. After six months of clinical evaluation with several specialists (neurologists, neurosurgeons, and gastroenterologists), she was, finally, diagnosed with hyperthyroidism by an Internal Medicine physician in another private clinic. Treatment with thiamazole and propranolol led to the improvement of symptoms progressively. This case emphasizes the uncommon gastrointestinal manifestation of thyrotoxicosis, particularly vomiting, which can persist for weeks to years if not treated. It also highlights how pre-existing medical conditions, like Chiari type 1 Malformation, can obscure the diagnosis of hyperthyroidism. Timely recognition and a comprehensive diagnostic approach are crucial in managing such cases effectively.

**Keywords:** *thyrotoxicosis, vomiting, Chiari type 1 malformation*

[Abstract:1319]

## A CLINICAL CASE OF PSEUDOHYPOPARATHYROIDISM

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**Introduction:** Pseudohypoparathyroidism encompasses a heterogeneous group of diseases that are characterized by resistance of target organs to the action of parathyroid hormone.
**Case Presentation:** We describe the clinical case of a 50-year-old woman with a 2-year history of muscle cramps/muscle spasms and intermittent paresthesias of the extremities and mood changes. She had facial dysmorphia, cataracts, short stature, Chovstek and Trousseau signs.It was investigated with hypocalcaemia 5.9 (N 8.8-10.4 mg/dL) and hyperphosphatemia 4.9 (N 2.3-4.3 mg/dL) and PTH 181 (N 12-65 pg/mL), study of normal thyroid function and brain CT scan with calcification of the basal ganglia.
Calcium and calcitriol supplementation normalized calcium and phosphorus values with symptomatic improvement.
**Conclusions:** Changes in phospho-calcium metabolism with symptomatic manifestations, dysmorphia and calcification of the basal ganglia on brain CT scans should raise the possibility of pseudohypoparathyroidism and its differential diagnoses of hypoparathyroidism, pseudohypoparathyroidism and vitamin D deficiency.

**Keywords:** *pseudohypoparathyroidism, phospho-calcium, metabolism*

[Abstract:1323]

## HIRSUTISM IN AN HIV PATIENT ON ANTIRETROVIRAL TREATMENT

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**Purpose:** In HIV patients (pHIV) we found higher rates of smoking and therefore, a higher risk of chronic obstructive pulmonary disease (COPD). The most used treatments in these patients are inhalers with beta-2 agonists, corticosteroids and anticholinergics. Despite inhaled administration, we must take into account its possible systemic effects as well as potential interactions with antiretroviral therapy (ART).
**Methods:** 54-year-old patient with a medical history of chronic HIV infection on treatment with darunavir and cobicistat since 2016. Diagnosed with high-risk GOLD 2 COPD with inhaled formoterol/fluticasone therapy. Two months later, the patient started with hirsutism, increased fat in the supraclavicular and

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retrocervical spaces, a full moon face, spontaneous bruising, and high blood pressure. In blood test we found practically undetectable cortisol, with adrenocorticotropic hormone <5 pg/ml, and low dehydroisoandrosterone sulphate compatible with exogenous Cushing's.

**Findings:** In this patient, the interaction with cobicistat causes a strong inhibition of the CYP450 enzymatic system and, as a consequence, a lengthening of the half-life of fluticasone in the blood and an increase in exposure to the corticosteroid. Thus, we changed ART to dolutegravir/lamivudine and inhaler to formoterol/beclomethasone.

**Conclusions:** It must be taken into account that ART frequently has drug interactions, some of them potentially serious. Therefore, it is advisable when prescribing new concomitant drugs to always review these interactions using the available tools to avoid possible side effects. Regarding the treatment of COPD in pHIV, if corticosteroids are required, beclomethasone is recommended because of its poor metabolism through the CYP.

*Keywords:* *HIV, antiretroviral, inhalers, COPD, Cushing*

[Abstract:1339]

## EUTHYROID SYMPTOMATIC INDIVIDUALS IN HASHIMOTO'S THYROIDITIS: A CASE REPORT

*Júlia Moniz Ganem, Giovana Carvalho Monnerat Magalhães, Rodrigo Garcia Direito, Victor Cavina Simões Alves, Nicolas David Sessin Prado, Lorena Barros Miranda, Roberta Arnoldi Cobas, Fabio Akio Nishijuka*

Faculdades Souza Marques (Escola de Medicina Souza Marques), Rio de Janeiro, Brazil

**Case Description:** 53-year-old woman was diagnosed with Hashimoto's thyroiditis (HT) and had been previously treated with low dose levothyroxine despite normal results of thyroid stimulating hormone (TSH) and free thyroxine (T4).

After attempts to discontinue levothyroxine due to normal without the medication, there was a recurrence of classic symptoms (fatigue, hair loss, and memory failure), prompting the resumption of drug therapy.

Subsequently, she returned to the outpatient clinic reporting symptom improvement, maintaining drug therapy, and experiencing no changes in TSH and free T4 levels.

**Clinical Hypothesis:** The challenge was the persistence of hypothyroid symptoms despite normal laboratory tests. This scenario motivated the continuation of treatment and the pursuit of individualization in the patient's case.

**Diagnostic Pathways:** The diagnosis was made based on symptoms of thyroid dysfunction and anti-thyroperoxidase antibody (anti-TPO) dosage. Outpatient management was based on clinical parameters.

**Discussion and Learning Points:** In this case report, a personalized treatment approach was considered with the patient's agreement. Given the underlying autoimmune disease (HT), we chose to continue the low-dose hormone replacement (25 mcg) that had previously resulted in the improvement of symptoms and to monitor closely.

*Keywords:* *Hashimoto's thyroiditis, symptomatic euthyroidism, symptom persistence, individualized treatment*

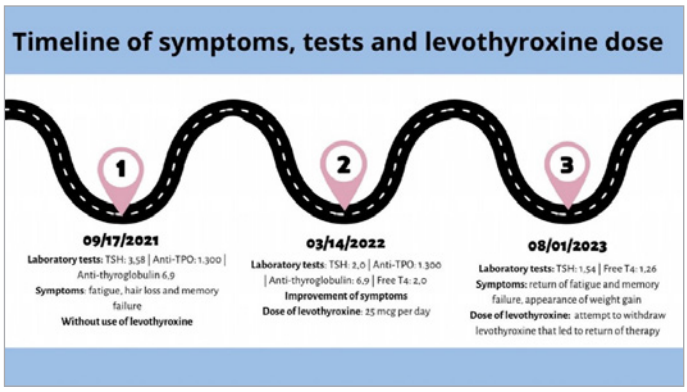


***Figure 1.*** *Timeline of symptoms, levothyroxine dosage and tests.*

[Abstract:1386]

## AN ENTITY THAT CAN BE DIAGNOSED IF IT COMES TO MIND: ACROMEGALY

*Sumeyye Memis, Emre Durcan, Figen Kahyaoglu Bayraktar, Seher Irem Duman, Ahmet Engin Atay*

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**Introduction:** Acromegaly is a rare disease associated with excessive secretion of growth hormone (GH). Early diagnosis is very important to prevent complications associated with acromegaly. In this report, we present a patient who had a clinically aggressive phenotype due to a delayed diagnosis.

**Case Presentation:** A 51-years male underwent surgery for a pituitary macroadenoma in 1998. Pathological examination was performed, but tumour subtype was not defined. Moreover, the patient could not be diagnosed with acromegaly and regular visits could not be made. The patient was first diagnosed with acromegaly in 2014, but the phenotypic presentation of acromegaly developed during the period until diagnosis. After a failed first operation, he underwent another operation in 2018, after which he was left without follow-up and treatment for a long time.

The patient, who complained of constipation in the internal medicine outpatient clinic, had TSH: 2.5 mIU/L fT4: 0.6 ng/dl, cortisol: 1 µg/dl, IGF-1: 13 µg/L and GH: 0,5 µg/L before being referred to endocrinology with suspected panhypopituitarism and hydrocortisone and levothyroxine replacement was started by endocrinology.

**Conclusions:** In this case, the diagnosis of acromegaly was not recognised and followed for years when the symptoms and signs appeared, so the patient could not receive effective treatment and the signs of the disease were dramatic. Therefore, biochemical and radiologic follow-up of patients with pituitary adenomas should be well performed and early diagnosis and treatment should be

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ensured by being aware of the fact that acromegaly can develop as a result of GH-secreting adenomas.

*Keywords:* *acromegaly, pituitary adenoma, growth hormone*

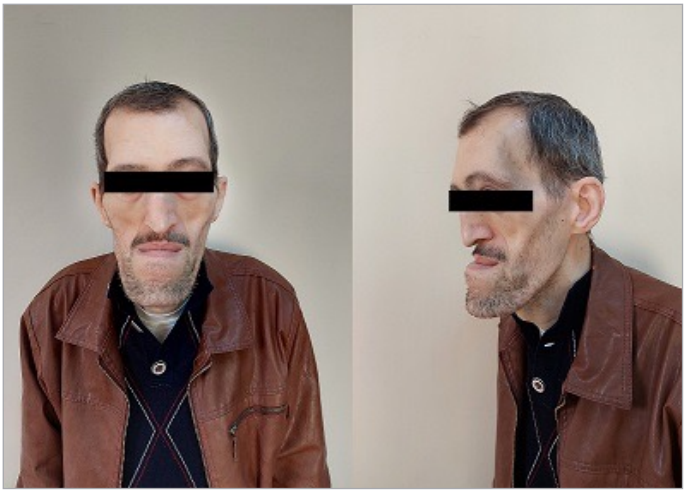

***Figure 1.*** *Aggressive phenotype of acromegaly.*
*A patient who had a clinically aggressive phenotype due to a delayed diagnosis.*

[Abstract:1442]

## PANHYPOPITUITARISM PRESENTING ACUTELY WITH HEADACHES AND SEVERE NEUROLOGICAL DEFICITS

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An 18-year-old man presented with complaints of Headaches, intractable vomiting, binocular diplopia, and visual hallucinations along with bilateral lower limb weakness and urinary continence for 5 days. He had acromegalic features along with an incomplete 3rd nerve and 6th nerve palsy on the right.

He was experiencing visual hallucinations and had evidence of bitemporal hemianopia. He had a pyramidal pattern weakness of his lower limbs. He had blood tests which demonstrated signs of panhypopituitarism and MRI head with contrast showed signs of a large pituitary apoplexy that extended superiorly, inferiorly, and laterally to cause bilateral parasagittal lobe strokes, Corpus callosal strokes and right lateral cavernous sinus compression to explain the neurological manifestations.

He was managed for his hypopituitarism with intravenous hydrocortisone and his neurology started improving 5 days after presentation.

On follow up he had no residual neurology but he had persistent panhypopituitarism. Most cases of cerebral infarction due to a pituitary adenoma were secondary to ICA compression, but we present a unique case of bilateral anterior cerebral artery and pericallosal artery compression along with direct lateral cavernous sinus compression which caused these unique neurological findings.

*Keywords:* *hypopituitarism, stroke, neurological localization*

[Abstract:1449]

## A CASE OF PHEOCHROMOCYTOMA PRESENTING WITH STROKE

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Pheochromocytoma is the condition of hypersecretion of catecholamines by chromaffin cells. But the manifestations may vary from an asymptomatic state to a life-threatening emergency and thus known as the "disease with thousand faces". It is also one of the most important causes of young-adult onset stroke.

We report a 33-year-old woman with an extremely labile blood pressure and recurrent strokes. With a 1.5 -year history of labile hypertension untreated, anxiety, nervousness, paroxysmal throbbing headache, numbness, she has been treated with antidepressant for panics attacks. 3 months ago, she presented in a serious condition with motor aphasia, left hemiparesis, cognitive impairment, vomiting and was admitted in the Stroke Unit Ward. CT scan of the head revealed bilateral cerebral infarctions (left frontal and right temporo-occipital). Echocardiography, carotid artery Doppler were normal. After 2 weeks the patient is transferred to the Internal Medicine Ward for further investigation. CT scan of the abdomen, revealed a heterogeneous mass 5.3 x 4.8 cm above the left kidney. The patient underwent 9 weeks of recovery time. After having 2 weeks of preoperative preparation with alpha and beta-blocker, she underwent a left adenectomy. Postoperatively, she remained normotensive without anti-hypertensive medications.

This case illustrates importance of early recognition of classic symptoms of catecholamine excess in young patients. Prompt recognition of pheochromocytoma is crucial in treating patients who present with otherwise-inexplicable cerebrovascular event. Cerebral infarctions remains a rare manifestation of a rare disease. A missed or delayed diagnosis has the potential for serious neurologic morbidity for an otherwise treatable condition.

*Keywords:* *pheochromocytoma, psychiatric disease, stroke*

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[Abstract:1472]

# EXPLORING THE PREVALENCE AND RISK FACTORS OF NON-ALCOHOLIC FATTY LIVER DISEASE IN PATIENTS WITH NEWLY DIAGNOSED DIABETES MELLITUS: A COMPREHENSIVE INVESTIGATION

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**Background:** Non-alcoholic fatty liver disease (NAFLD) represents a growing concern in the context of metabolic disorders, particularly among individuals diagnosed with type 2 diabetes mellitus (T2DM). This study aimed to investigate the prevalence of NAFLD among newly diagnosed T2DM patients and identify the risk factors for NAFLD in this population.

**Methods:** This prospective study included 85 patients with newly diagnosed T2DM between January 2022 and June 2023, and the diagnosis of fatty liver was confirmed using the diagnostic criteria of the American Diabetes Association. Diagnostic ultrasonography was used to detect the presence of NAFLD. Factors indicating the development of NAFLD in T2DM patients were evaluated using linear regression models.

**Results:** The average ages were 57.4 years in the NAFLD (-) group and 54.4 years in the NAFLD (+) group. While 33.3% of the NAFLD (-) group was female, 40% of the NAFLD (+) group was female, with no significant difference between the two groups (p = 0.631). Statistical analysis revealed elevated alanine transaminase (ALT) (24±7 U/L vs. 46±42 U/L, p<0.001) and non-high-density lipoprotein cholesterol levels (166±28 mg/dL vs. 186±56 mg/dL, p=0.047) in the fatty liver group. Spearman correlation analysis showed the NAFLD of all grades was positively associated with waist circumference, LDL cholesterol, and platelet count. Multiple linear regression analysis highlighted ALT and body mass index as independent determinants of NAFLD.

**Conclusions:** This study underscores the significant prevalence of NAFLD in newly diagnosed T2DM patients, emphasizing the relevance of early detection to address this common comorbidity in the diabetic population.

***Keywords:*** *type 2 diabetes mellitus, non-alcoholic fatty liver disease, predictors*

[Abstract:1475]

# CUTOFF VALUES OF WAIST CIRCUMFERENCE FOR IDENTIFYING METABOLIC SYNDROME IN TURKISH POPULATION

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**Objective:** Metabolic syndrome is a growing global health concern, with waist circumference measurement being a key diagnostic criterion. However, anthropometric variations among ethnicities pose a challenge.

**Methods:** In this single-centre and observational study, individuals aged 18 and above visiting our hospital's internal medicine clinics were included. Patients' medical histories, medication usage, and habits such as smoking and alcohol consumption were surveyed. Those with malignancy, diabetes, coronary artery disease, and those using antidiabetic and antihyperlipidemic drugs were excluded from the study. Eligible patients underwent fasting blood tests, anthropometric measurements, and blood pressure measurements. The presence of two of the International Diabetes Federation (IDF) metabolic syndrome criteria, other than waist circumference, was considered indicative of metabolic syndrome. ROC analysis was conducted to find the optimal waist circumference values for identifying metabolic syndrome in both men and women.

**Results:** A total of 665 patients were included in the study, with a female predominance (62.9%) and a mean age of 40.2±10.9 years. In women, the mean BMI was 30±6.7, the mean waist circumference was 91.2±14.6 cm, and metabolic syndrome was detected in 28%. In men, the mean BMI was 28.9±5.1, the mean waist circumference was 98.4±13.1 cm, and metabolic syndrome was detected in 45.3%. Optimal waist circumference cut offs were 94.5 cm for women (sensitivity: 71%, specificity: 70%, AUC: 0.75 p<0.001) and 98.5 cm for men (sensitivity: 62%, specificity: 58%, AUC: 0.66 p<0.001).

**Conclusions:** Waist circumference is effective in identifying metabolic syndrome. Higher optimal cut offs for Turkish women emphasize the need for further studies.

***Keywords:*** *metabolic syndrome, obesity, anthropometric measurements*

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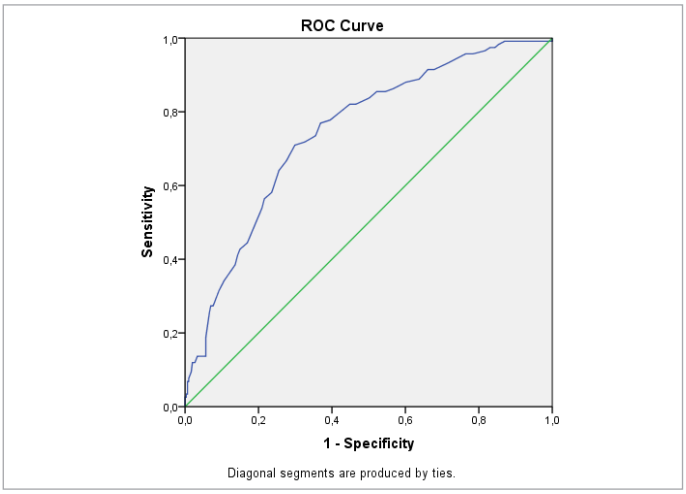


*Figure 1. Receiver Operating Characteristic (ROC) curve for women. Receiver Operating Characteristic (ROC) curves corresponding to waist circumference values associated with two or more criteria other than waist circumference in the diagnosis of metabolic syndrome in women.*

| Variable ( n=418) | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| Age | 18 | 63 | 40.3 | 11.4 |
| Waist circumference (cm) | 60 | 136 | 91.2 | 14.6 |
| BMI (kg/m²) | 18 | 55 | 30 | 6.7 |
| Fasting glucose (mg/dl) | 55 | 196 | 93.6 | 13.2 |
| LDL-cholesterol (g/dl) | 37 | 242 | 123.2 | 36.7 |
| HDL-cholesterol (g/dl) | 25 | 117 | 52.8 | 13 |
| Tryglyceride (g/dl) | 21 | 747 | 114.5 | 70 |

*Table 1. Baseline Laboratory and Anthropometric Characteristics of Women.*

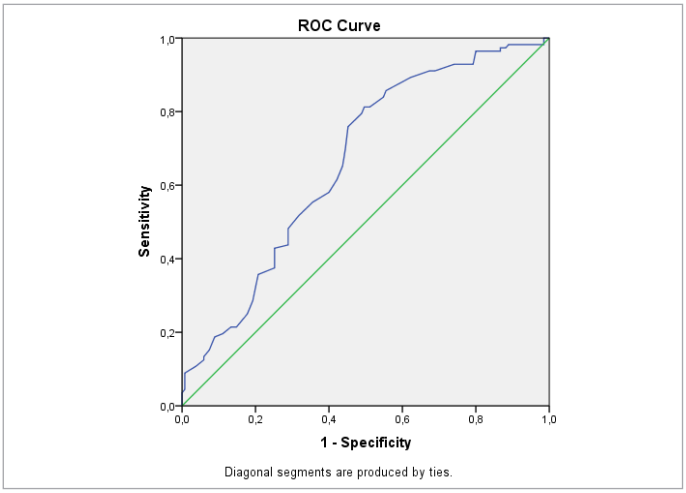


*Figure 2. Receiver Operating Characteristic (ROC) curve for men. Receiver Operating Characteristic (ROC) curves corresponding to waist circumference values associated with two or more criteria other than waist circumference in the diagnosis of metabolic syndrome in men*

| Variable (n=247) | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| Age | 18 | 63 | 40.1 | 10.3 |
| Waist circumference (cm) | 66 | 142 | 98.4 | 13.2 |
| BMI (kg/m²) | 17 | 48 | 28.9 | 5.1 |
| Fasting glucose (mg/dl) | 56 | 294 | 97.3 | 27.2 |
| LD-cholesterol (mg/dl)L | 36 | 258 | 121.5 | 37.7 |
| HDL-cholesterol (mg/dl) | 20 | 87 | 42.4 | 11.3 |
| Tryglyceride (mg/dl) | 32 | 493 | 156 | 86.6 |

*Table 2. Baseline Laboratory and Anthropometric Characteristics of Men.*

[Abstract:1506]

## GENETIC PREREQUISITES FOR THE DEVELOPMENT OF CARDIOMETABOLIC DISORDERS IN THE USE OF GLUCOCORTICOIDS

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[2] Neurological center, Rostov State Medical University, Rostov-on-Don, Russia

[3] Genetics Department, Southern Federal University, Rostov-on-Don, Russia

**Summary:** Multiple sclerosis (MS) is a disease requiring the use of glucocorticoids (GC) during exacerbations. Polymorphisms of the glucocorticoid receptor *NR3C1* gene, melatonin receptor *MTNR1B* gene, FTO are associated with the development of cardiometabolic disorders as a side effect of GC. Combinations of genotypes with increased and decreased risk of metabolic syndrome after GC in patients with MS were determined, that may help personify therapy.

**Purpose:** Evaluation of the association of polymorphisms *rs56149945*, *rs41423247* of the *NR3C1* gene, *rs10830963 MTNR1B*, *rs9939609 FTO* with the development of metabolic syndrome in patients with MS.

**Methods:** The study included 80 patients (71.2% women) 36.3±10 years who received 4 (3-4) g of methylprednisolone, with MS 6 (2.5;10) years, EDSS 2.5 (2;3.25). Fasting venous plasma glucose, lipid profile, anthropometric parameters, diaries of physical activity, sleep before and after GC were evaluated. Genotyping of polymorphisms was performed using PCR.

**Findings:** Metabolic syndrome was more likely in people with a burdened hereditary history of hypertension (p=0.01; OR 1.94;95% CI 1.18-3.18), in the presence of *rs10830963 MTNR1B* (p=0.02; OR 1.89;95% CI 1.09-3.25), *rs41423247 NR3C1* (p=0.001; OR 2.6;95% C 1.32-5.14). Combinations of genotypes with increased and decreased risk of metabolic syndrome after GC were determined using MDR-analysis. Antagonistic relationships between the *rs9939609* polymorphism of the *FTO* gene and *rs41423247* of the *NR3C1* were shown.

**Conclusions:** Determination of *rs41423247*, *rs56149945* of the

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*NR3C1, rs10830963 MTNR1B, rs9939609 FTO* gene with careful history collection may help identify patients requiring early active measures to correct metabolic disorders, as well as personify GC therapy.

*Keywords:* *glucocorticoids, gene polymorphisms, cardiometabolic disorders*

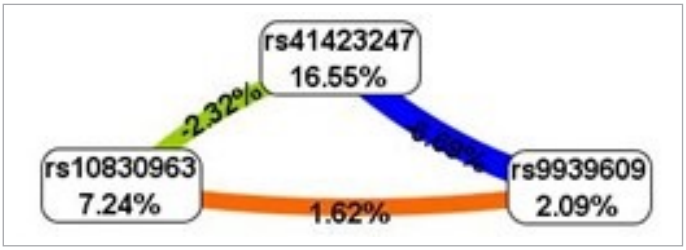


***Figure 1.*** *Graph of intergenic interactions.*
*On the graph, the strength and direction of the interaction are expressed in % entropy on the edges of the graph. Positive values mean synergy, negative values mean antagonism. Values close to zero mean independent interactions. The information value of each marker is indicated at the vertices of the graph Interestingly, the interactions between rs41423247 of the NR3C1 gene and rs9939609 of the FTO gene are pronounced antagonistic.*

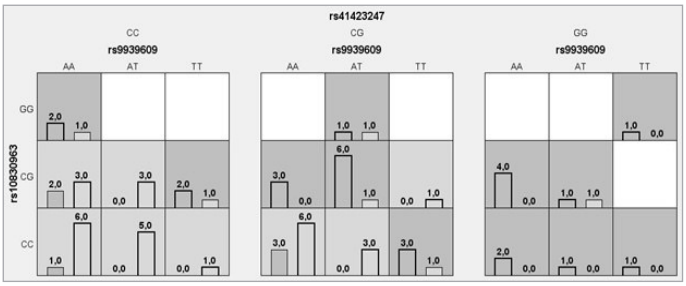


***Figure 2.****Graph of the frequency of metabolic syndrome for each combination of genotypes.*
*Genotypes with a high risk of developing metabolic syndrome are indicated in dark gray, those with a low risk are indicated in light gray. Combinations that are not found in the data for this outcome are indicated in white. The columns indicate the number of cases of metabolic syndrome (left column) and its absence (right column).*

[Abstract:1537]

# COMPARATIVE ANALYSIS OF MOTS-C PEPTIDE LEVELS IN INDIVIDUALS WITH OBESITY AND HEALTHY BODY WEIGHT, AND INVESTIGATION OF THE CORRELATION BETWEEN MOTS-C PEPTIDE LEVELS, INFLAMMATION, INSULIN RESISTANCE, AND ENDOTHELIAL FUNCTION

*Duygu (Yildiz) Ozkaya[1], Cem Haymana[2], Umut Goktan Duman[3], Erhan Kupcuk[3], Gizem Esra Koc[4], Ilker Tasci[1], Yusuf Alper Sonmez[5]*

[1] University of Health Sciences, Department of Internal Medicine Gulhane Faculty of Medicine & Gulhane Training and Research Hospital, Ankara, Turkey
[2] University of Health Sciences, Department of Endocrinology and Metabolism, Gulhane Faculty of Medicine & Gulhane Training and Research Hospital, Ankara, Turkey
[3] University of Health Sciences, Department of Biochemistry Gulhane Faculty of Medicine & Gulhane Training and Research Hospital, Ankara, Turkey
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[5] Guven Hospital, Ankara, Turkey

**Purpose:** MOTS-C peptide (Mitochondrial Open Reading Frame of the Twelve S rRNA type-c), a mitochondrial peptide, is thought to have role in metabolism and metabolic diseases. The aim of this study is to investigate the serum levels of MOTS-C peptide in individuals with obesity and healthy body weight, while also exploring its associations with insulin resistance, endothelial function, and inflammation.

**Methods:** This single-centre, case-control, cross-sectional study included individuals with obesity and healthy body weight presenting to our outpatient clinic. MOTS-C peptide, insulin, Asymmetric Dimethylarginine (ADMA), and high-sensitivity C-reactive protein (hsCRP) levels were analysed in the serum samples. A total of 85 participants were included in the study.

**Findings:** Laboratory findings revealed a mean MOTS-C peptide level of 143.5±41.4 pg/mL in individuals with normal weight and 147.9±46.4 pg/mL in those with obesity (p-value: 0.650). A significant positive correlation was found between MOTS-C peptide and HOMA-IR (Homeostatic Model Assessment of insulin resistance) and ADMA levels (p-values of 0.000 and 0.003, respectively). Regression analysis identified age (OR: 0.093, CI 0.87-0.99, p=0.025), female gender (OR: 4.39, CI 1.20-15.9, p=0.025), and HOMA-IR (OR: 2.48, CI 1.42-4.32, p=0.001) as associated factors with elevated MOTS-C levels.

**Conclusions:** In conclusion, we did not find a significant relationship between MOTS-C peptide and obesity, although a strong association was identified between MOTS-C peptide levels and insulin resistance. Additionally, significant associations were observed between MOTS-C peptide levels, age, and female gender. Further prospective studies with larger sizes are needed to elucidate the role of MOTS-C peptide in metabolism.

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*Keywords:* *mots-c peptide, insulin resistance, obesity*

| | Individuals with Normal Weight (n=37) | Individuals with Obesity (n=48) | Total group (n=85) | p value |
|---|---|---|---|---|
| MOTS-C peptide (pg/ml) | 143.5±41.4 | 147.9±46.4 | 146±44.1 | 0.650 |
| ADMA (ng/ml) | 657.1±226.3 | 837.2±810.2 | 758.8±630.37 | 0.193 |
| HOMA-IR | 1.79±0.76 | 3.07±1.36 | 2.51±1.30 | <0.001 |
| hs-CRP (mg/L) | 1.21±2.01 | 6.58±8.89 | 4.24±7.28 | <0.001 |
| Fasting plasma glucose (mg/dL) | 78.8±6.58 | 87.8±13.3 | 83.9±11.7 | <0.001 |
| Hba1c (%) | 5.17±0.31 | 5.69± 0.28 | 5.46±0.39 | 0.000 |

***Table 1.*** *Comparison of Laboratory Values in Individuals with Normal Weight and Obesity.*
*ADMA: Asymmetric dimethylarginine, MOTS-C (Mitochondrial Open Reading Frame of the Twelve S rRNA type-c), Hba1c: glycated haemoglobin, HOMA-IR: homeostatic model assessment-insulin resistance, hsCRP: High-sensitivity C-reactive protein.*

| | Odds ratio | CI* (min) | CI (max) | p |
|---|---|---|---|---|
| Age (years) | 0.933 | 0.878 | 0.991 | 0.025 |
| Gender (female) | 4.39 | 1.20 | 15.99 | 0.025 |
| Hba1c (%) | 3.96 | 0.50 | 30.99 | 0.189 |
| ADMA (ng/ml) | 1.0 | 0.99 | 1.00 | 0.890 |
| hsCRP (mg/L) | 1.01 | 0.93 | 1.11 | 0.677 |
| HOMA-IR | 2.48 | 1.42 | 4.32 | 0.001 |
| BMI (kg/m²) | 0.913 | 0.82 | 1.01 | 0.079 |

***Table 2.*** *Linear regression analysis of MOTS-C peptide levels.*
*ADMA: Asymmetric dimethylarginine, BMI: body mass index, Hba1c: glycated haemoglobin, HOMA-IR: homeostatic model assessment-insulin resistance, hsCRP: High-sensitivity C-reactive protein, *95% confidence interval.*

[Abstract:1553]

## GASTROINTESTINAL SYMPTOMS AND PLEURAL EFFUSION. AN USUAL ASSOCIATION

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**Case Description:** We present a 32-year-old man from Paraguay with a history of untreated *Helicobacter pylori* infection. He came to the emergency department for 3 days of asthenia, increased pain in the epigastrium, vomiting and weight loss of 13 kilos in 6-7 months. Physical examination revealed a blood pressure of 85/70 mmHg. Blood tests showed hyponatremia of 128 meq/L and potassium of 5.6 mEq/L. Chest X-ray showed mild right pleural effusion and minimal left pleural effusion. Analgesia, antiemetics and serum therapy were administered and the patient was discharged with treatment for *Helicobacter pylori*.
After 24h, he came back. Blood tests showed worsening of hyponatremia with sodium 122 mEq/L with mild metabolic acidosis and normal potassium. Serum therapy was administered and the patient was admitted to complete the study.
A thoraco-abdomino-pelvic CT scan was performed showing bilateral apical pulmonary scarring, minimal bilateral pleural effusion and bilateral adrenal thinning. On reinterrogation, the patient reported salt cravings and skin hyperpigmentation in recent months.
**Clinical Hypothesis:** Primary adrenal insufficiency was considered.
**Diagnostic Pathways:** Basal cortisol was suppressed and ACTH was elevated, confirming the clinical hypothesis. Substitutive treatment with hydrocortisone was started with clinical and analytical improvement. A mycobacterial study was requested with isolation of *Mycobacterium tuberculosis* in urine, initiating treatment with good response.
**Discussion and Learning Points:** Adrenal insufficiency can debut with gastrointestinal discomfort on many occasions. In many areas of the world, tuberculosis is highly prevalent and remains the leading cause. Treatment is based on hormone replacement therapy and early tuberculostatic treatment.

*Keywords:* *adrenal insufficiency, gastrointestinal symptoms, pleural effusion, tuberculosis*

[Abstract:1584]

## USE OF CANEPHRON® N FOR SYMPTOMS OF ACUTE CYSTITIS IN FEMALE PATIENTS WITH TYPE 2 DIABETES MELLITUS TAKING SODIUM-GLUCOSE CONTRANSPORTER-2 INHIBITORS

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A.I. Evdokimov Moscow State University of Medicine and Dentistry of the Ministry of Healthcare of Russia, Moscow, Russia

**Introduction:** Type 2 diabetes (T2DM) is associated with increased risk of cystitis.
**Aim:** evaluation of Canephron® N effect at dysuria symptoms severity, probability of refusing from sodium-glucose cotransporter type 2 inhibitors (iSGLT-2), life quality of females with T2DM having symptoms of dysuria.
**Methods:** Included 40 females with symptoms of cystitis having >6 group (n=20), in addition to standard points on the questionnaire scale (ACSS) in addition to T2DM and taking iSGLT-2. In the main therapy, patients received Canephron® N for 1 month, 2 tablets 3 times a day. Comparison group (n=20) received standard treatment for cystitis. At the 1st, 2nd and 3rd visits, common urine analysis and the ACSS, SF-36 completion.
**Results:** In comparison group, 15% patients stopped taking SGLT-2 inhibitors because of dysuria. In the main group no

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discontinuation. No adverse events in both groups. In the main group statistically significant decrease in the ACSS score at the 2nd and 3rd visits (p=0.006 and p <0.001). At the 3rd visit, a statistically significant decrease in leukocyturia in the main group (p=0.020), increase in the score of physical functioning due to physical condition (p=0.009), vital activity (p=0.036) and level of social functioning (p=0.044).

**Conclusions:** The study confirms the reasonability of adding Canephron® N to the treatment regimens of female patients with acute cystitis symptoms in addition to T2DM, taking iSGLT-2. Decrease noted in clinical symptoms, leukocyturia and an improvement in the life quality of patients during therapy with Canephron® N and decrease of probability of SGLT-2 discontinuation.

**Keywords:** *diabetes mellitus, sodium-glucose cotransporter type 2 inhibitors, urinary tract infection, herbal medicine, cystitis, Canephron® N*

[Abstract:1654]

## ORAL HYPOGLYCEMIC TREATMENT IN PATIENTS WITH TYPE 2 DIABETES MELLITUS ADMITTED TO INTERNAL MEDICINE. EVOLUTION IN 10 YEARS

*Oihana Barrenechea Arribillaga, Cristina Gay Gonzalez, Iratxe Martinez Bermejo, Aitor Vazquez Barrios, Miriam Diez Saez, Jorge Collado Saenz, Beatriz Dendariena Borque, Estela Menéndez, German Daroca, Sergio Palacios, Mario Salcedo, Rafael Daroca Pérez*

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**Purpose:** The aim of this study is to know the clinical characteristics and hypoglycaemic treatment (HGT) of patients with type 2 diabetes mellitus (T2DM) admitted to an Internal Medicine (IM) service. Analyse the changes in these parameters compared with similar groups studied in 2013 and 2018.

**Methods:** It is a prospective, transversal and observational study. Every patient with T2DM admitted to IM service of a second level hospital from May 1st to June 2nd, 2023, was consecutively included in this study. Description of clinical characteristics and HGT upon admission; compared them with 2 groups studied in 2013 and 2018 with similar methodology.

**Results:** 58 patients were analysed. Comparison of the most relevant characteristics in 2013, 2018 and 2023 are shown in Table 1. The most frequent comorbidities were arterial hypertension (86.9%), dyslipidaemia (54%) and chronic kidney disease (63.9%). Mean LDLc 60.3±21.5 mg/dL, glomerular filtration rate 50.3±25.9 ml/min. The HGT on admission was: 9.8% diet alone, 52.5% non-insulin hypoglycaemic agents (NIH), 13.1% insulin and 24.6% HNI and insulin. Table 2 shows the comparison of the THG in 2013, 2018 and 2023.

**Conclusions:** Diabetic patients admitted to MI show high age and good glycaemic control, which has remained practically stable in the last 10 years. It is observed an increased use of HNI and a progressive decrease of insulin. Metformin continues to be the most used HNI, with the disappearance of sulfonylureas, in line with recommendations for the elderly. The increase in iSGLT2 has been notable, making it the second most used.

**Keywords:** *diabetes mellitus, hypoglycaemic, cardiovascular*

| | 2013 | 2018 | 2023 |
|---|---|---|---|
| Age | 81± 8 | 81.9± 8.8 | 82.1± 8.8 |
| Male sex | 55% | 50% | 54% |
| Glycated haemoglobin (%) | 7.4± 1.5 | 6.9± 1.1 | 7.4± 1.2 |
| Macroangiopathy | 40% | 36.4% | 63.9% |
| Microangiopathy | 30% | 20.4% | 68.9% |

***Table 1.*** *Comparison of the general characteristics of diabetic patients over 10 years.*

| | 2013 | 2018 | 2023 |
|---|---|---|---|
| Sulfonylureas | 16% | 3.4% | 0% |
| Methylglinides | 8% | 17.8% | 4.2% |
| Metformin | 41% | 39.3% | 52.1% |
| Glitazones | 0% | 0% | 4.2% |
| Dipeptidyl peptidase 4 inhibitors | 22% | 47.4% | 39.6% |
| Glucagon-like peptide 1 receptor agonist | 0% | 0% | 10.4% |
| Sodium-glucose cotransporter type 2 inhibitors | 0% | 2.5% | 41.7% |
| Insulin | 45% | 40.7% | 35% |

***Table 2.*** *Comparison of the hypoglycemic treatment administered to diabetic patients over 10 years upon admission to internal medicine.*

[Abstract:1709]

## BIOELECTRICAL IMPEDANCE DERIVED PHASE ANGLE (PHA) IN PEOPLE LIVING WITH OBESITY AND ITS RELATIONSHIP WITH COMORBIDITIES AND INFLAMMATORY BIOMARKERS

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**Summary:** Obesity is characterized by both, high fat mass and poor skeletal muscle mass. The phase angle (PhA) is considered like an indicator of cell integrity, an index of muscle mass strength/quality and related to comorbidities in obesity.

**Purpose:** To assess the relationship between PhA, comorbidities and inflammatory markers in people with obesity.

**Methods:** We included 198 outpatients with obesity, (BMI >30), divided into three groups according with the tertiles of the distribution of PhA (<5°, 5-6°, >7°). Body compositions were analysed by bioimpedance (Tanita MC-780P Multi-Frequency Segment Body Composition Analyzer). The variables were

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compared with Kruskal-Wallis when quantitative and Chi-squared when qualitative. A correspondence analysis was built to show the influence of qualitative variables through the tertiles.

**Findings:** Patients in the lowest tertile had the lowest appendicular skeletal muscle mass index (ASMI) (Table 1), more history of high blood pressure, diabetes mellitus, chronic kidney disease (CKD), and heart failure (HF) (Table 2). Likewise, they had lower Albumin and the highest inflammatory index (albumin and Derived neutrophil-to-lymphocyte Ratio, NLRAB) (Table 3). The correspondence analysis showed an association between the lowest tertile and the presence of both, HF with preserved ejection fraction (HFpEF) and CKD (figure 1).

**Conclusions:** PhA could be useful in the assessment of muscle quality and inflammatory status to predict obesity phenotypes with high risk of comorbidities associated with the sarcopenic obesity profile.Keywords: phase angle, obesity, comorbidities.

*Keywords: obesity, phase angle (PhA), comorbidities, inflammatory biomarkers*

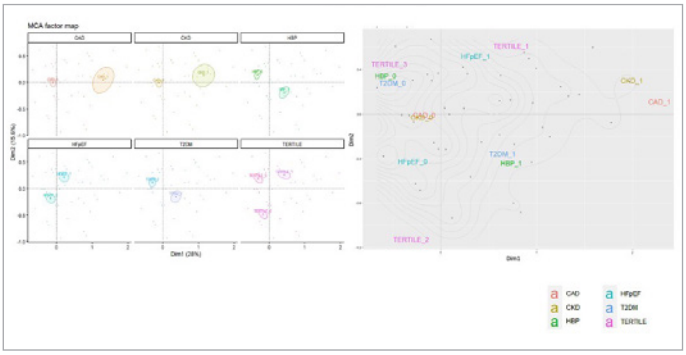

***Figure 1.*** *Correspondence Analyses.*
*The correspondence analysis showed an association between the lowest PhA tertile and the presence of both, HF with preserved ejection fraction (HFpEF) and CKD among other comorbidities.*

| Variable | T 1 | T2 | T3 | p |
|---|---|---|---|---|
| N | 72 | 64 | 62 | |
| Phase Angle (PhA) | 4.3 (0.825) | 5.2 (0.225) | 6.2 (0.775) | <0.0000 |
| Body Mass Index (Kg/m²) | 38 (10.7) | 40 (10.2) | 41 (10) | 0.03 |
| Fat Mass (Kg) | 42.2 (19.3) | 47.7 (21) | 48.5 (18.8) | 0.03 |
| Muscle mass (Kg) | 31.7 (8.5) | 33.4 (8.4) | 37.7 (8.8) | 0.001 |
| Muscle mass index (Kg/m²) | 21 (6) | 21 (3.7) | 21 (6) | 0.09 |
| Apendicular muscle mass (Kg) | 22.9 (7.1) | 24 (8.2) | 27.7 (9.2) | 0.001 |
| Apendicular muscle mass Index (Kg/m²) | 9 (2.4) | 9.2 (2.2) | 10.3 (2.6) | 0.001 |
| Total Water (Kg) | 39.3 (13.2) | 40.6 (13.5) | 47.9 (13.3) | <0.0 |
| Visceral Adiposity Index (Kg/m²) | 15 (8) | 16 (7.5) | 17 (9.7) | 0.17 |

***Table 1.*** *Bioimpedance Body Composition.*

| Variable | T 1 | T2 | T3 | p |
|---|---|---|---|---|
| N | 72 | 64 | 62 | |
| Age (yr) | 54 (18.2) | 49 (14.5) | 43.3 (10) | <0.0 |
| Sex (women) | 52 (72.2) | 45 (70.3) | 32 (51) | 0.02 |
| Smoke | 16 (22.8) | 9 (14.5) | 15 (24.2) | 0.31 |
| Alcoholism | 9 (12.5) | 11 (17.2) | 8 (12.9) | 0.69 |
| T2DM | 38 (52.8) | 28 (48.7) | 21 (33.) | 0.08 |
| HBP | 38 (52.8) | 28 (43.7) | 21 (38.9) | 0.08 |
| Dislipidemia | 34 (47.2) | 24 (37.5) | 23 (37.1) | 0.39 |
| Steatohepatitis | 20 (27.8) | 19 (29.7) | 19 (30.6) | 0.9 |
| HF preserved | 43 (59.7) | 23 (35.9) | 23 (37.1) | 0.006 |
| HF reduced | 8 (8.3) | 1 (1.6) | 0 | 0.01 |
| Ischemic cardiopathy | 10 (13.9) | 1 (1.6) | 3 (4.8) | 0.01 |
| Stroke | 4 (5.6) | 2 (3.1) | 0 | 0.17 |
| GERD | 12 (16.7) | 21 (32.8) | 13 (20.9) | 0.07 |
| CKD | 14 (19.4) | 3 (4.7) | 1 (1.6) | 0.0005 |
| OAHS | 16 (22.2) | 9 (14.1) | 15 (24.2) | 0.31 |
| Bariatric Surgery | 29 (40.3) | 17 (26.6) | 10 (16.1) | 0.007 |

Foot Note: CKD: Chronic Kidney Disease; GERD: gastroesophageal reflux disease; HBP: High Blood Pressure; HF: Heart Failure; T2DM: Type 2 diabetes; OHSA: Obesity-associated hypoventilation syndrome

***Table 2.*** *Clinical variables.*

| Variable | T 1 | T2 | T3 | p |
|---|---|---|---|---|
| N | 72 | 64 | 62 | |
| Glucose (mg/dL) | 93 (22) | 97 (14.2) | 93.5 (19.3) | 0.57 |
| HbA1c (%) | 56 (0.7) | 55 (0.5) | 55 (0.6) | 0.79 |
| Urea (mg/dL) | 34.5 (15) | 30.5 (14.2) | 31.5 (12) | 0.01 |
| Creatinine (mg/dL) | 0.79 (0.3) | 0.75 (0.2) | 0.78 (0.23) | 0.008 |
| eGFR (CKD-EPI) (ml/min/1.73 m²) | 91 (33.5) | 99 (18.2) | 104.5 (21.5) | 0.001 |
| Total Cholesterol (mg/dL) | 169.5 (46.7) | 182.5 (33.7) | 170.5 (44.3) | 0.03 |
| HDL-Col (mg/dL) | 47 (16) | 47.5 (14.2) | 44.5 (12) | 0.09 |
| LDL-Col (mg/dL) | 89 (41.5) | 109 (30.7) | 103.5 (40.7) | 0.01 |
| Triglycerides (mg/dL) | 113 (82) | 114 (71.2) | 115 (88.5) | 0.34 |
| Albumin (g/dL) | 4.3 (0.42) | 4.5 (0.4) | 4.5 (0.35) | <0.00 |
| AST (UI/L) | 17 (7) | 17 (8.5) | 18 (10) | 0.62 |
| ALT (UI/L) | 15 (10.2) | 16 (12) | 23 (21.7) | 0.02 |
| GGT (UI/L) | 20 (22.5) | 20 (14.59 | 26.5 (24) | 0.03 |
| FA (UI/L) | 84.5 (35) | 77 (27.2) | 72.5 (33) | 0.02 |
| Hemoglobin (g/dL) | 13.9 (2) | 14.2 (1.7) | 14.4 (2.1) | 0.08 |
| Neutrophil ($10^9$/L) | 3975 (2080) | 3820 (1590) | 4310 (1962) | 0.57 |
| Lymphocytes ($10^9$/L) | 2020 (877.5) | 2260 (910) | 2320 (994.2) | 0.02 |
| Platelets ($10^9$/L) | 250.000 (72250) | 260.000 (94750) | 263.000(73750) | 0.029 |
| C-Reactive Protein (mg/L) | 3.8 (7.4) | 4 (5.7) | 3.25 (4) | 0.74 |

Foot Note: ALT, Alanine transaminase; AST, Aspartate transaminase; eGFR: estimated Glomerular Filtration Rate; GGT, Gamma-glutamyltransferase, FA: Alkaline Phosphatase

***Table 3.*** *Biochemical variables.*


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[Abstract:1735]

## A RARE CAUSE OF ACUTE HEPATITIS: THYROTOXIC HEPATITIS

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**Case Description:** 49-year-old woman applied to our emergency department with complaints of jaundice, weakness, fatigue, started in last two weeks. The patient was admitted to the general surgery department with diagnosis of mechanical icterus but no liver or bile tract pathology was seen in the USG, MRCP or abdominal CT. She was transferred to the internal medicine clinic. The patient, who had a diagnosis of AF, had no history of consuming any medications, herbal products or mushrooms. On physical examination, the skin and scleras were icteric, heart sounds were tachyarrhythmic. AF was detected on the ECG. AST: 509 U/L (0-32), ALT: 188 U/L (0-33), ALP: 102 U/L (35-104), GGT: 18 U/L (6-42), total/direct bilirubin: 15.28 mg/dL (0-1.2) / 8.93 mg/dL (0-0.30), INR: 1.34 (0.8-1.25), albumin: 27.3 g/L (35-52), CRP: 7 mg/L (0-5), TSH <0.0.1 (0.27-4.2) mU/L. Transaminase and bilirubin levels increased day by day.

**Clinical Hypothesis:** The patient has autoimmune or thyrotoxic hepatitis which is a very rare condition.

**Diagnostic Pathways:** Viral markers of the patient (anti HAV IgM, HBsAg, anti HBc-IgM, anti-HCV, anti-HIV, anti-HSV1, 2-IgM, anti-CMV-IgM, EBV-VCA-IgM, EBNA-IgM) were negative; ANA was positive at low titer; AMA/ASMA/anti-LKM/p-ANCA were negative. Ceruloplasmin, ferritin, protein electrophoresis were normal. Control TSH: <0.0.1 mU/L (0.27-4.2); sT4: 20.3 ng/L (8.9-17.1), sT3: 6.7 ng/L (2-4.4), anti-TPO: <9 kU/L (0-34). Thyroid USG revealed a right 27x15 mm solid nodule. Thyroid $I^{131}$uptake/scintigraphy was compatible with toxic adenoma (Figure 1). After propranolol 2x20 mg/day and prednisolone 1x60 mg/day, the patient had a significant decline in transaminase-bilirubin values. Methimazole 2x5 mg was started during the follow-up and increased up to 4x5 mg(PO). Approximately 2 weeks later ALT: 81 U/L, AST: 44 U/L, total/direct bilirubin: 2.9/1.7 mg/dL. RAI treatment was given to the euthyroid patient with sT4:16 ng/L. The patient is still under follow-up as euthyroid.

**Discussion and Learning Points:** Transaminase levels should be attempted with supportive treatment, B blockers, steroids, plasmapheresis - if necessary - in patients who develop severe thyrotoxic hepatitis. Antithyroid treatment should not be started If transaminase levels are 5 times higher than the upper normal limit. When transaminase values decrease, antithyroid treatment should be started at low dose and titrated carefully. RAI treatment should be planned without delay, after euthyroidism for patients with toxic adenoma who develop severe thyrotoxic hepatitis.

***Keywords:*** *thyrotoxic, hepatitis, antithyroid treatment, RAI*

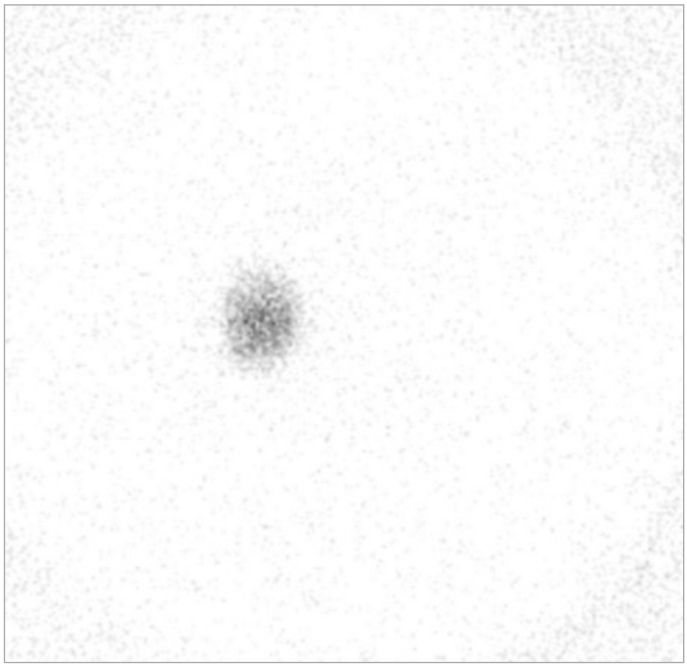

***Figure 1.*** *Thyroid scintigraphy image is compatible with toxic adenoma*

[Abstract:1756]

## NEPHROTIC SYNDROME DUE TO POOR DIABETIC CONTROL

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A 39-year-old woman, with a history of dyslipidaemia, primary hypothyroidism, poorly controlled type 1 diabetes mellitus, and unmonitored diabetic retinopathy since 2019, presented to the emergency department with a 15-day history of progressively worsening oedema in both lower limbs. Blood pressure was 170/90 mmHg, and pitting oedema was observed. Blood analysis showed abnormalities, including haemoglobin at 10.3 g/dL, glucose at 187 mg/dL, total proteins at 4.8 g/dL, and albumin at 2.1 g/dL. Urinalysis revealed 3+ protein and 4+ glucose. Clinical ultrasound indicated mild pulmonary and pericardial effusions and renal changes suggestive of nephropathy. Diagnosed with nephrotic syndrome, the woman was hospitalized. Additional tests covered metabolic profiling, autoimmune and infectious disease markers, thyroid hormones, protein electrophoresis, and serology for syphilis, hepatitis B, C, and HIV. Glycosylated haemoglobin was 13%, and a 24-hour urine sample showed selective proteinuria of 6 g/g of albumin. The case was managed as probable secondary nephrotic syndrome due to poorly controlled diabetic nephropathy. Ophthalmology and endocrinology evaluations revealed severe worsening of diabetic retinopathy, necessitating intravitreal anti-angiogenic therapy.

**Discussion:** Nephrotic syndrome is characterized by proteinuria exceeding 3.5 g/24 h/1.73 $m^2$, hypoalbuminemia, dyslipidaemia, and oedema. It results from altered glomerular filtration barrier

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permeability, with our case likely secondary to diabetes. Severe cases may have non-selective proteinuria, affecting coagulation factors, immunoglobulins, and lipoproteins. Most cases do not affect glomerular filtration immediately. Nephrotic syndromes are categorized into primary and secondary glomerulonephritis, with our case likely being secondary due to diabetes.

*Keywords:* *nephrotic syndrome, diabetes, oedema, proteinuria, retinopathy, glomerulonephritis*

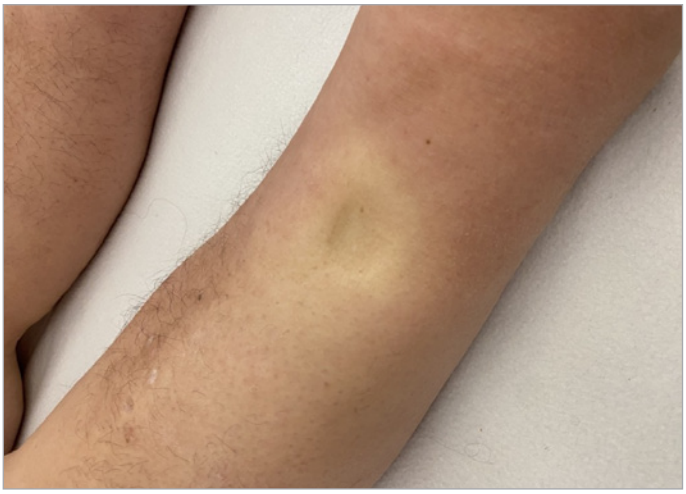

***Figure 1.*** *Enema in both lower limbs.*
*Oedema of both lower limbs in our case patient. Note the significant pitting that persisted for hours.*

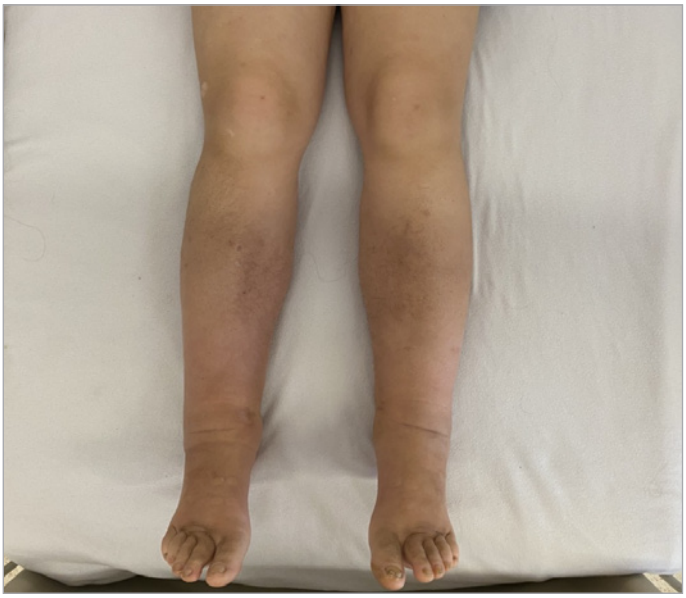

***Figure 2.*** *Oedema in both lower limbs.*
*Oedema of both lower limbs in our case patient. Note the significant pitting that persisted for hours.*

[Abstract:1759]

## TENOFOVIR INDUCED HYPOPHOSPHATEMIC OSTEOMALACIA IN A PATIENT WITH HEPATITIS B

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Tenofovir disoproxil fumarate (TDF) is one of the most widely used agents in treatment of hepatitis B infection. Here we present a rare case of TDF induced hypophosphatemic osteomalacia, in a patient with hepatitis B infection receiving TDF treatment for the past 15 years. Our patient was a 53-year-old female, who presented to a university hospital in Istanbul, Turkey with complaints of fatigue and generalized body aches. She had priorly been diagnosed with bilateral femoral neck fractures and osteoporosis at a different healthcare facility and was started on analgesic treatment. Upon admission, she was investigated for secondary causes of the fractures, such as metabolic bone disorders or malignancy. Her laboratory results demonstrated hypophosphatemia, high-normal total calcium levels, normal 25-OH Vitamin D levels, and elevated ionized calcium and ALP levels. PTH level was decreased and PTHrP assay was negative. There was also a non-anion gap, hyperchloremic metabolic acidosis on the blood gas sample, and proteinuria and glucosuria in urinalysis, which were also consistent with a proximal tubule defect.24-hour urine calcium was elevated. 24-hour urine phosphorus levels were initially normal, but they increased as the serum phosphorus was iatrogenically corrected. Serum and urine protein electrophoresis and FDG-PET scan were normal. Through a multidisciplinary approach, the patient's tubular and bone toxicity were related to TDF use and TDF was changed to entecavir. The patient was operated for femoral fractures and was given denosumab to increase bone mineral density. This case demonstrates possible effects of TDF on calcium and bone metabolism and we recommend monitoring for these side effects.

*Keywords:* *tenofovir disoproxil fumarate, hypophosphatemia, osteomalacia, bone metabolism, hepatitis B*

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[Abstract:1772]

# A REAL-LIFE COMPARATIVE STUDY OF THE USE OF ORAL AND SUBCUTANEOUS FORMULATIONS OF SEMAGLUTIDE STARTED IN PATIENTS WITH TYPE 2 DIABETES: ARE THE EFFECTS OF THE ORAL FORMULATION SIMILAR TO THOSE OF THE SUBCUTANEOUS FORMULATION?

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Glucagon-like peptide-1 receptor agonists (GLP-1 agonists) potently lower HbA1c, reduce weight and have renal and cardiovascular benefits. Recently, an oral formulation of semaglutide has been developed. However, there are no studies comparing directly the two different formulations. In this context, we proposed a study with consecutive inclusion of outpatients who started semaglutide from the beginning with oral (oSEMA) or subcutaneous formulation (scSEMA) between November 2022 and January 2023.Baseline characteristics prior to semaglutide initiation were similar in both group of patients. A longer time of evolution of T2DM in scSEMA (12.7±11.1 years vs. 4.6±3.8, p=0.006) stands out.There was an improvement in HbA1c, weight and BMI at 4-6 months in both formulations, and at 12 months with scSEMA. Comparatively, scSEMA and oSEMA had similar results in absolute and percentage weight difference, BMI and HbA1c at 4-6 months and 12 months.The number of patients reaching maximum doses (1 mg/14 mg) was similar. This resulted in a higher continuation of treatment with scSEMA (29, 96.7%,n=30) compared to oSEMA (8 (66.7%),n=12), with p=0.018. The synchronic antidiabetics were similar between oSEMA and scSEMA.Adverse effects were higher with oSEMA (4 (33.3%), n=12), compared to scSEMA (1 (3.3%),n=30). This resulted in a higher continuation of treatment with scSEMA (29, 96.7%, n=30) compared to oSEMA (8 (66.7%), n=12), with p=0.018.Although the clinical response between oSEMA and scSEMA was similar in our cohort, longitudinal follow-up of oSEMA was short (only 2 patients with 12-month follow-up), which could influence on the results obtained. Longer follow-up time is needed for more reliable results.

**Keywords:** *glucagon-like peptide-1 receptor agonists, GLP-1 agonists, type 2 diabetes mellitus, semaglutide, real-life comparative study*

| | | Formulation Type | | |
|---|---|---|---|---|
| | Overall, N = 42[1] | Oral, N = 12[1] | SC, N = 30[1] | p-value[2] |
| **AGE** | | | | 0,357 |
| Mean ± SD | 64.3 ± 11.7 | 62.0 ± 10.7 | 65.2 ± 12.1 | |
| Median [25%-75%] | 67.0 [59.0-74.0] | 61.0 [58.8-67.2] | 71.0 [60.0-74.8] | |
| Minimum---Maximum | 32.0---81.0 | 41.0---77.0 | 32.0---81.0 | |
| **GENDER** | | | | 0,731 |
| Male | 17 (40.5%) | 4 (33.3%) | 13 (43.3%) | |
| Female | 25 (59.5%) | 8 (66.7%) | 17 (56.7%) | |
| **HYPERTENSION** | | | | 0,483 |
| | 26 (61.9%) | 6 (50.0%) | 20 (66.7%) | |
| **DYSLIPEMIA** | | | | 0,463 |
| | 29 (69.0%) | 7 (58.3%) | 22 (73.3%) | |
| **OBESITY** | | | | 0,758 |
| No | 6 (14.3%) | 2 (16.7%) | 4 (13.3%) | |
| Grade 1 | 15 (35.7%) | 6 (50.0%) | 9 (30.0%) | |
| Grade 2 | 7 (16.7%) | 1 (8.3%) | 6 (20.0%) | |
| Grade 3 | 10 (23.8%) | 2 (16.7%) | 8 (26.7%) | |
| Grade 4 | 4 (9.5%) | 1 (8.3%) | 3 (10.0%) | |
| **SMOKING** | | | | >0.999 |
| | 9 (21.4%) | 2 (16.7%) | 7 (23.3%) | |
| **PROGRESSION TIME (years)** | | | | **0,006** |
| Mean ± SD | 10.4 ± 10.3 | 4.6 ± 3.8 | 12.7 ± 11.1 | |
| Median [25%-75%] | 8.5 [3.0-13.8] | 4.0 [1.0-6.8] | 11.0 [3.5-17.5] | |
| Minimum---Maximum | 1.0---45.0 | 1.0---12.0 | 1.0---45.0 | |

[1]Mean ± SD; Median [IQR]; n (%)
[2]Wilcoxon rank sum test; Fisher's exact test

*Table 1. Baseline characteristics.*

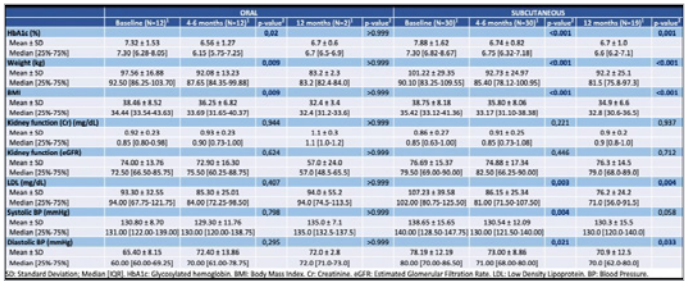

*Table 2. Comparison of clinical and analytical results at 4-6 months and 12 months follow-up.*

| | Overall(N = 42)[1] | Oral (N = 12)[1] | SC (N = 30)[1] | p-value[2] |
|---|---|---|---|---|
| **Weight difference at 4-6 months (kg)** | | | | 0,54 |
| Mean ± SD | - 5.58 ± 5,15 | - 5.00 ± 1.50 | - 5.85 ± 5.32 | |
| Minimun --- Máximum | - 20--- 1,8 | - 16.0 --- 0.5 | - 20.0---1.80 | |
| **Weight difference at 4-6 months (%)** | | | | 0,494 |
| Mean ± SD | - 5.41 ± 4.34 | - 4.76 ± 3.95 | - 5.71 ± 4.56 | |
| Minimun --- Máximum | - 7,34 --- 0.81 | -12.2 --- 0.44 | - 14.46 --- 1.95 | |
| **BMI difference at 4-6 months** | | | | 0,54 |
| Mean ± SD | - 2.20 ± 2.00 | - 2.02 ± 2.10 | - 2.28 ± 2.00 | |
| Minimun --- Máximum | - 7.34 --- 0.81 | - 6.93 --- 0.22 | - 7.35 --- 0.81 | |
| **HbA1c difference at 4-6 months (%)** | | | | 0,334 |
| Mean ± SD | -1.02 ± 1.33 | - 0,73 ± 0.82 | - 1.15 ± 1.52 | |
| Minimun --- Máximum | -5.80 --- 2.50 | - 2.40 --- 0,40 | - 5.8 --- 2.5 | |
| | | | | |
| **Weight difference at 12 months (kg)** | | | | 0,54 |
| Mean ± SD | - 6.45 ± 4.44 | - 2.20 ± 4.52 | - 6.91 ± 4.18 | |
| Minimun --- Máximum | - 14.8 --- 1,3 | - 5.40 --- 1.0 | - 14.80 --- 1.30 | |
| **Weight difference at 12 months (%)** | | | | 0,494 |
| Mean ± SD | -16.8 ± 1.62 | - 2.50 ± 5.23 | - 7.12 ± 4.59 | |
| Minimun --- Máximum | - 6.68 --- 1.02 | - 6.20 --- 1.19 | - 16.81 --- 1.62 | |
| **BMI difference at 12 months** | | | | 0,54 |
| Mean ± SD | - 2.51 ± 1.75 | - 0.78 ± 1.69 | - 2.69 ± 1.70 | |
| Minimun --- Máximum | - 6.24 --- 0.53 | - 1.98 --- 0.41 | - 6.24 --- 0.53 | |
| **HbA1c difference at 12 months (%)** | | | | 0,334 |
| Mean ± SD | - 1.25 ± 1.58 | - 0,35 ± 0.63 | - 1.35 ± 1.63 | |
| Minimun --- Máximum | - 6.70 --- 1.90 | - 0.8 --- 0.10 | - 6.70 --- 1.90 | |

SD: Standard Deviation; Median [IQR]. HbA1c: Glycosylated hemoglobin. BMI: Body Mass Index. Cr: Creatinine. eGFR: Estimated Glomerular Filtration Rate. LDL: Low Density Lipoprotein. BP: Blood Pressure.

*Table 3. Difference in weight, BMI and HbA1c of oral (oSEMA) versus subcutaneous (scSEMA) SEMA at 4-6 months and 12 months from baseline.*



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[Abstract:1787]

# SEQUENTIAL DIAGNOSIS OF PARATHYROID ADENOMA AND MELANOMA IN A 24-YEAR-OLD MALE WITH BAP1 AND PPP2R1B POSITIVE STATUS - A CASE REPORT

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**Introduction:** Parathyroid adenoma is an uncommon cause of primary hyperparathyroidism in young individuals, and its association with genetic mutations, PPP2R1B mutations has implications in cellular regulation and have been linked to the development of parathyroid adenomas, while BAP1 mutations have been linked to melanoma and other cancers, the concurrence of parathyroid adenoma and melanoma is rare.

**Case Presentation:** A 24-year-old male presented with symptoms suggestive of hypercalcemia, including fatigue and bone pain. Laboratory investigations revealed elevated corrected serum calcium levels 13 mg/dL and increased parathyroid hormone levels 187.0 pg/mL. Imaging studies, including neck ultrasound identified a single parathyroid adenoma. The patient subsequently underwent successful surgical resection of the adenoma.

Given the patient's age and the unusual presentation of parathyroid adenoma, genetic testing was initiated. The genetic analysis revealed two significant mutations: a germline BAP1 mutation, known to be associated with an increased risk of various malignancies, and a PPP2R1B mutation, implicated in the development of parathyroid adenomas.

During routine surveillance for potential malignancies associated with BAP1 mutations, a suspicious skin lesion was identified. A biopsy confirmed the diagnosis of cutaneous melanoma. Further evaluation demonstrated that the melanoma had not metastasized, and the patient underwent successful surgical excision of the lesion.

**Conclusions:** The sequential diagnosis of parathyroid adenoma and melanoma in patients with positive BAP1 and PPP2R1B mutations highlights the importance of genetic screening in neoplastic diseases. BAP1 mutations have been associated with increased risk for melanoma, while the role of PPP2R1B in tumorigenesis remains less clear but warrants further study.

*Keywords:* *parathyroid adenoma, melanoma, BAP1, PPP2R1B*

[Abstract:1825]

# DIAGNOSTIC PROBLEMS OF DIABETES INSIPIDUS: A CASE REPORT

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**Introduction:** Diabetes insipidus (DI) is a disease characterized by the inability of the kidneys to reabsorb water and concentrate urine. Nowadays there are certain diagnostic algorithms, however misdiagnosis is quite common due to non-compliance of diagnostic standards.The case report. A 39-year-old male patient, in 2021 presented with frequent urination, thirst up to 12 litres per day. Diagnosis of DI was established. MRI of pituitary gland revealed a pituitary microadenoma. Antidiuretic therapy was prescribed. In June 2023, patient increased the dose of antidiuretic therapy to 1-2 doses about 12 times a day.

In July 2023 patient referred to the endocrinologist due to deterioration. His laboratory tests revealed a decrease in potassium, a decrease in sodium, a decrease in chlorine. Daily fluid intake was 6,400 ml. Taking into account the results of laboratory data, as well as the absence of the effect of the dose of desmopressin on diuresis, water deprivation test was conducted.

In response to water deprivation there was no changes in urine osmolality level and blood osmolarity increased. Afterwards desmopressin stimulation test was no change in urine osmolality, which allowed us to establish the diagnosis of nephrogenic DI. Hydrochlorothiazide 50 mg was prescribed. Patient also turned to psychiatrist and was prescribed with antidepressants, after initiation of treatment the patient noted a decrease in the frequency and volume of nocturnal urination. Sodium levels was within normal range.

**Conclusions:** Non-compliance with the diagnostic algorithms may lead to the misdiagnosis and, accordingly, inappropriate therapy, which in turn led to electrolyte disorders.

*Keywords:* *diabetes insipidus, polyuria, polydipsia*

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[Abstract:1843]

# COMPARISON OF CONTROLLED AND UNCONTROLLED BLOOD PRESSURE-BLOOD GLUCOSE LEVELS AND SELF-COMPASSION IN INDIVIDUALS WITH METABOLIC SYNDROME: A COHORT STUDY

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**Purpose:** Despite intensive medical care in patients with metabolic syndrome, psychological barriers remain important in achieving optimal treatment targets. The aim of this study is to compare two groups of controlled versus uncontrolled blood pressure-blood glucose in individuals with metabolic syndrome to elucidate any associations with self-compassion.

**Methods:** This cross-sectional study included 120 patients, who were diagnosed with metabolic syndrome, aged ≥18 years, and had ≥1 check-up visits per month for ≥6 months. Three parameters of blood pressure <140/90 mmHg, HbA1C <7% and fasting blood glucose <130 mg/dL were required to be included in "controlled" group; any one of these three criteria that was unmet was "uncontrolled." A matched cohort with similar age, gender and comorbidities were created from these patients (controlled N = 51, uncontrolled N = 50). Body mass index measurement and Self-Compassion Scale survey was applied. All data were analysed by Pearson Chi-Square (for categorical variables) and Independent-Sample t Test (for numerical variables) when comparing binary groups.

**Results:** The median age for the 101 patients is 57.45±8.7 years, where 63% (n=64) were female. Self-compassion, self-kindness, mindfulness scores were found to be significantly higher in the controlled group than in the uncontrolled group, while isolation was higher in the uncontrolled group.

**Conclusions:** Among individuals with metabolic syndrome, those who achieved glucose and blood pressure control were determined to have higher self-compassion than those who could not reach target values. This highlights how self-compassion, self-kindness, mindfulness and avoiding psychosocial isolation is important when striving to achieve treatment goals.

***Keywords:*** *metabolic syndrome, self-compassion, mindfulness, diabetes, blood pressure*

| | | Controlled Glucose & Blood Pressure | Unontrolled Glucose & Blood Pressure | Difference between groups |
|---|---|---|---|---|
| Characteristic | | N (%) | | |
| Gender | Female | 35 (68.6%) | 29 (58.0%) | |
| | Male | 16 (31.3%) | 21 (42.0%) | 0.268 a |
| Chronic Disease | Diabetes Mellitus | 35 (68.6%) | 40 (80%) | 0.191a |
| | Hypertension | 31 (60.8%) | 35 (70%) | 0.331a |
| Age (years) | Mean±SD | 57.61±8.43 | 57.28±9.03 | 0.851b |
| BMI (kg/m²) | | 32.84±6.08 | 34.12±6.09 | 0.834 b |
| Systolic Blood Pressure (mmHg) | | 121.61±15.79 | 131.24±16.55 | 0.003 b |
| Diastolic Blood Pressure (mmHg) | | 78.96±8.17 | 84.92±9.61 | 0.001 b |
| HbA1c (%) | | 6.29±0.49 | 8.56±1.50 | <0.001b |
| Fasting Blood Glucose (mg/dL) | | 107.70±17.72 | 169.58±49.22 | <0.001b |
| Self-Kindness Score | | 3.660±0.826 | 3.296±0.876 | 0.039 b |
| Self-Judgment | | 1.718±0.656 | 1.904±0.912 | 0.241 b |
| Common Humanity | | 3.320±1.058 | 3.219±0.985 | 0.561 b |
| Isolation | | 1.977±0.828 | 2.385±1.018 | 0.028 b |
| Mindfulness | | 3.945±0.953 | 3.455±0.953 | 0.011 b |
| Over-identified | | 2.285±0.813 | 2.531±0.739 | 0.115 b |
| Self-Compassion Total Score | | 3.845±0.480 | 3.626±0.565 | 0.038b |
| a: Pearson Chi-Square, b: Independent-Sample t Test | | | | |

***Table 1.*** *Comparison between controlled & uncontrolled groups for demographics, BMI, metabolic parameters and self-compassion.*

[Abstract:1847]

# DEVELOPMENT OF NON-ALCOHOLIC FATTY LIVER DISEASE IN WOMEN WITH TYPE 2 DIABETES MELLITUS IN RELATION TO THYROID HORMONE STATUS

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**Background and aims:** The known risk factors for non-alcoholic fatty liver disease (NAFLD) are obesity, diabetes mellitus (DM), and dyslipidaemia. Insulin resistance (IR) may be both a cause and a consequence of NAFLD. Data on the relationship between thyroid hypofunction and IR are conflicting, but insulin sensitivity improves with L-thyroxine replacement therapy. This study aimed to investigate the relationship between thyroid function and NAFLD in women with diabetes mellitus.

**Methods:** 69 women with type 2 DM were studied, of whom 22 had hypothyroidism due to autoimmune thyroiditis and 47 had euthyroidism. NAFLD occurred in 68.2%. Thyroid hormone profile, indices of lipid and carbohydrate metabolism, biochemical markers of liver function, and HOMA-IR index were examined. The diagnosis of NAFLD was confirmed by liver ultrasound.

**Results:** Patients with hypothyroidism were statistically significantly older (p=0.0001) and had higher HOMA IR (p=0.01) than women with euthyroidism. Patients with type 2 DM and hypothyroidism were statistically significantly more likely to have steatohepatitis (p=0.002) than women with DM and euthyroidism. Patients with NASH had statistically significantly longer duration of DM (p=0.03), and higher thyroid stimulating hormone (TSH) levels (p=0.016). TSH level was higher (p=0.004) and free

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thyroxine level was lower (p=0.01) in steatohepatitis compared to hepatic steatosis, independent of thyroid function.

**Conclusions:** Risk factors for the development of NAFLD are longer duration of type 2 DM and decompensated hypothyroidism. Decompensated hypothyroidism is associated with the presence of steatohepatitis. Patients with type 2 DM in combination with hypothyroidism had higher insulin resistance.

**Keywords:** *non-alcoholic fatty liver disease, diabetes mellitus, hypothyroidism*

[Abstract:1867]

## USE OF ORAL HYPOGLYCEMIC AGENTS IN PATIENTS WITH TYPE 2 DIABETES AND HEART FAILURE, CHRONIC KIDNEY DISEASE OR CARDIOVASCULAR DISEASE ONCE ADMITTED TO INTERNAL MEDICINE

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**Purpose:** The aim of this study is to describe the amount of use of glucagon-like peptide 1 receptor agonists (GLP-1 receptor agonists) and sodium-glucose cotransporter 2 inhibitors (SGLT2 inhibitors) in patients with type 2 diabetes (T2DM) and chronic kidney disease (CKD), heart failure (HF) and/or cardiovascular disease (CVD) when they are admitted to an Internal Medicine service.

**Methods:** Prospective, transversal and observational study. Every patient with T2DM admitted to Internal Medicine from May 1st to June 2nd 2023 was consecutively included in it. The use of GLP-1 agonists and SGLT2 inhibitors was evaluated based on the presence of CKD, HF and/or CVD.

**Findings:** 58 patients were analysed, the average age was 82.1± 8.8 years, 54% men, mean HbA1c was 7.4± 1.2%. 63.9% of the patients suffered from associated CKD, 58.6% presented with concomitant HF and finally 58.6%had had some type of CVD. The use of SGLT2 inhibitors and GLP-1 agonists in each of these groups is described in Table 1.

**Conclusions:** In this study, the implementation of using GLP-1 agonist and SGLT2 inhibitors in patients with T2DM associated with CKD, HF and/or CVD is very short in GLP-1 agonists and moderated in SGLT2 inhibitors. The utilisation of GLP-1 agonist and SGLT2 inhibitors has been confirmed in about one third of the total patients with T2DM, though the beneficial effects in this condition has been clearly proved. Despite the fact that they are mostly elderly and polypathological, we considerate that the most probable cause of avoiding these treatments is therapeutic inertia.

**Keywords:** *diabetes, cardiovascular, oral hypoglycemic agents*

| | CKD (n: 37) | HF (n: 34) | CVD (n:34) |
|---|---|---|---|
| GLP-1 agonist | 8.1% | 5.9% | 8.8% |
| SGLT2 inhibitor | 32.4% | 38.2% | 35.3% |
| Both | 2.7% | 2.9% | 2.9% |
| None | 56.8% | 52.9% | 52.9% |

***Table 1.*** *Percentage of patients with CKD, HF and CVD with ongoing treatment with GLP-1 agonist, SGLT2 inhibitor, both or none.*

[Abstract:1868]

## A RARE CASE: RIEDEL'S THYROIDITIS

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**Introduction:** Riedel's thyroiditis is a rare disease also known as chronic sclerosing thyroiditis. Riedel's thyroiditis may progress from the thyroid tissue to the perithyroidal soft tissue and spread to the parathyroid glands, nervus laryngeus recurrens, trachea, mediastinum and anterior chest wall.

**Case Presentation:** A 43-year-old male patient who had been diagnosed with hypoparathyroidism and hypothyroidism for 1 year applied to the outpatient clinic for routine control. He was diagnosed with vocal cord paralysis 3 months ago. In the neck USG performed in the outpatient clinic, the thyroid gland was firm and had an infiltrative image. Riedel's thyroiditis was primarily considered with clinical and USG images. Tru-cut biopsy was performed for differential diagnosis. In the neck computed tomography (CT), the size of the thyroid gland increased and infiltration into the trachea was observed. Prednol 32 mg and azathioprine 100 mg were started in the patient whose left lobe thyroid tru-cut biopsy was compatible with Riedel's thyroiditis. In the control neck CT taken at the 3rd month of the treatment, it was observed that the compression findings regressed. The thyroid gland parenchyma and size were normal in the USG performed at the 6th month of treatment. Hypoparathyroidism and vocal cord paralysis improved during follow-up. The patient, who received azathioprine and prednol 4 mg treatment, is being followed up in the endocrinology clinic.

**Conclusions:** If there is compression and obstructive findings, surgical treatment may be considered. There is evidence that steroid and tamoxifen therapy have positive effects.

**Keywords:** *hypoparathyroidism, Riedel's thyroiditis, vocal cord paralysis*

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[Abstract:1893]

## PROBLEMS OF LATE DIAGNOSIS OF AUTOIMMUNE POLYGLANDULAR SYNDROME TYPE 2: A CASE REPORT

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**Introduction:** Autoimmune polyglandular syndrome type 2 (APS-2) is a rare disorder characterized by two or more autoimmune endocrinopathies in combination with non–endocrine pathology. Timely diagnostic investigation and initiation of replacement therapy are essential to prevent development of a severe complications.

**Case Presentation:** A 44-year-old female patient, presented with general weakness, decreased appetite, nausea, vomiting, dizziness when getting out of bed. In 2010 diagnosis of vitiligo has been established. In 2012 autoimmune thyroiditis with manifest hypothyroidism was diagnosed, levothyroxine was prescribed. By April 2022 patient experienced hypotension, increased weakness, nausea, vomiting and significant weight loss (-31 kg). In October 2022 patient was no able to get out bed without help. Physical examination: hyperpigmentation of skin and skin folds. Based on clinical examination data and associated pathologies, APS-2 was suspected.

**Laboratory tests:** ACTH levels were elevated (1165 ng/mL), cortisol levels were slightly reduced (120 nmol/L). Patient was diagnosed with APS-2: chronic adrenal insufficiency, autoimmune thyroiditis, vitiligo. Non-oliguric acute renal failure was a complication of arterial hypotension and hypovolemia. Hormone replacement therapy was prescribed: hydrocortisone 40 mg daily, fludrocortisone 0.1 mg in the morning under blood pressure control. Positive dynamics were observed within a week, with improved weakness, increased mobility, normalized blood pressure, improved appetite, and resolution of nausea and vomiting.

**Conclusions:** This clinical case highlights consequences of misinterpreting clinical picture and delayed diagnosis of APS-2, leading to severe insufficiency of endocrine glands and other organs. Managing such patients requires a multidisciplinary approach to avoid diagnostic and treatment errors, improving prognosis and quality of life.

***Keywords:*** *autoimmune polyglandular syndrome type 2, adrenal insufficiency, Addison's disease*

[Abstract:1896]

## KEEP IN MIND! MULTIPLE SCLEROSIS AS A RARE REASON OF SECONDARY OSTEOPOROSIS: A CASE REPORT

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**Purpose:** Although it is not a common and known reason of secondary osteoporosis (OP), the increased risk of OP has been shown with multiple sclerosis (MS).

**Methods:** We report a 36-year-old premenopausal women diagnosed with MS who was consulted to our department by neurology for approval of pulse steroid treatment.

**Findings:** The patient was diagnosed with MS in 2018 with numbness in her legs. She was on ocrelizumab and pregabalin treatment and has taken ocrelizumab 4 times that was applied with 150 mg methylprednisolone prior to it. She also had 1000 mg of methylprednisolone treatment for 5 days in 2019 and 2022 during MS attacks. In her history and physical examination we did not detect any signs or findings of secondary osteoporosis. The laboratory tests were all within normal limits except for iron deficiency and insufficient vitamin D.

DXA scan of the skeleton revealed a Z-score of L1-L4 region -0.5, left neck of femur -2.1, total hip -1.8. (Table 1). Radiographic examination of the spine disclosed diffuse osteopenia with compression fractures of T7, T8, T9, T10 with moderate vertebral height loss on superior endplates (Figure 1). She was diagnosed with OP secondary to MS and was given vitamin D replacement and alendronic acid 70 mg/week.

**Conclusions:** MS should always be kept in mind as a risk factor for secondary OP, both due to physiological mediators of the disease (IL-1, TNF-α, IL6, IL-11, osteopontin) and the drugs used in its treatment such as steroids, anti-depressants/anticonvulsants.

***Keywords:*** *multiple sclerosis, osteoporosis, bisphosphonates*

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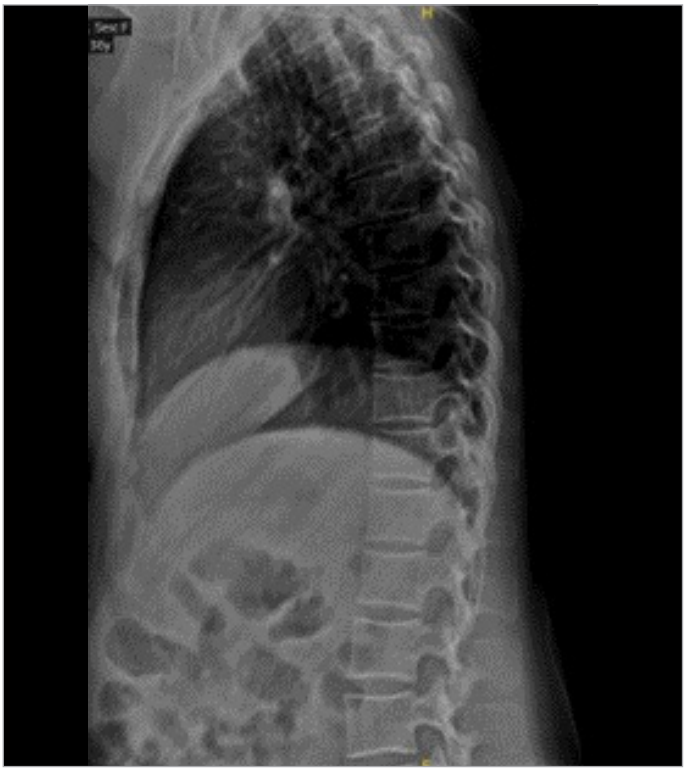

*Figure 1. Radiographic examination of the spine*

| Region | T-score | Z-score | BMD |
|---|---|---|---|
| L1-L4 | -0.5 | -0.5 | 1.127 g/cm$^2$ |
| Left femur neck | -2.4 | -2.1 | 0.699 g/cm$^2$ |
| Total hip | -1.9 | -1.8 | 0.763 g/cm$^2$ |

*Table 1. DXA scan findings*

[Abstract:1897]

## CONTROLLING NUTRITIONAL STATUS (CONUT) SCORE IS A NOVEL MARKER OF TYPE 2 DIABETES MELLITUS AND DIABETIC MICROVASCULAR COMPLICATIONS

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**Objective:** Type 2 diabetes mellitus (T2DM) and its microvascular complications are characterized with chronic inflammation. The Controlling Nutritional Status (CONUT) score is a tool used to assess the nutritional status and is often associated with inflammatory processes indirectly. We aimed to compare the CONUT score of T2DM patients to those of healthy volunteers and those of T2DM patients with and without microvascular complications.

**Methods:** The patients diagnosed with T2DM, and healthy volunteers (as control) were included to the study. The CONUT score is calculated with the following formula: serum albumin score + total cholesterol score + total lymphocyte count score. CONUT scores of the T2DM patients and healthy controls and those of the diabetics with and without microvascular complications were compared.

**Results:** CONUT score of the T2DM and control groups were (1 [0-7]), and (0 [0-2]), respectively (p<0.001). The sensitivity and specificity of CONUT score (<1.5 threshold) in detecting T2DM were 43% and 90%, respectively (AUC: 0.67, p<0.001, 95%CI: 0.64-0.71). Moreover, CONUT score was an independent risk factor of T2DM (OR: 0.34, p<0.001, 95%CI: 0.22-0.52). The CONUT score of T2DM patients with microvascular complication (2 [0-7]) was significantly higher than that of the T2DM patients without microvascular complication (0 [(0-4]) and control subjects (0 [0-2]), (p<0.001). A CONUT score higher than 1,5 had 83% sensitivity and 92% specificity in detecting T2DM with microvascular complication (AUC: 0.91, p<0.001, 95%CI: 0.89-0.93).

**Conclusions:** CONUT score would be useful in detecting diabetic microvascular complications in clinical practice, since it is inexpensive and easy to assess.

*Keywords: type 2 diabetes mellitus, microvascular complication, CONUT score, inflammation*

[Abstract:1898]

## A RARE ENTITY: FANCONI ANEMIA WITH PITUITARY STALK INTERRUPTION SYNDROME

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**Case Description:** A 48-year-old male was hospitalised in internal medicine due to pancytopenia. He refers a history of short stature in childhood and late adolescence, hypothyroidism, with history of growth hormone replacement at the age of 21 which followed by abrupt increase in height, he takes 10 mg hydrocortisone and 50 mg levothyroxine.Clinical hypothesis: the presence of pancytopenia and panhypopituitarism along with physical findings and pituitary stalk interruption syndrome confirming diagnosis of Fanconi anaemia.Diagnostic pathways: laboratory test showed: white blood cell: 1390 µL, haemoglobin: 9.3 g/L, platelet count: 43 000 µL, neu: 810 µL, lh 0.03 µg/L (1.7 -8.6 total testosterone <0.025 µg/L (2.49- 8.36 µg/L), somatomedin-c: 7 µg/L (82.6-209 µg/L), under 10 mg hydrocortisone and 50 mg levothyroxine replacement, last growth hormone replacement was in 21 years

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old. A careful physical examination revealed face with triangular shape, short webbed neck, micropenis, hyperpigmentation in skin was inspected.

A vague history of hypophytuitarism led us to further investigation: the patient underwent hypophysis MRI which revealed absence of pituitary stalk suggesting altogether features of Fanconi anaemia. Patient was referred to medical genetics specialist who evaluated him compatible with Fanconi anaemia.

**Discussion and Learning Points:** Fanconi anaemia is rare but it's the most commonly known reason of inherited bone marrow failure. It is mostly diagnosed in childhood but combined panhypopituitarism and pancytopenia within careful patient history, detailed physical examination via interdisciplinary approach gave us the opportunity to diagnose a childhood disease like FA in an adult.

**Keywords:** *Fanconi anaemia, pancytopenia, panhypopituitarism, pituitary stalk interruption syndrome*

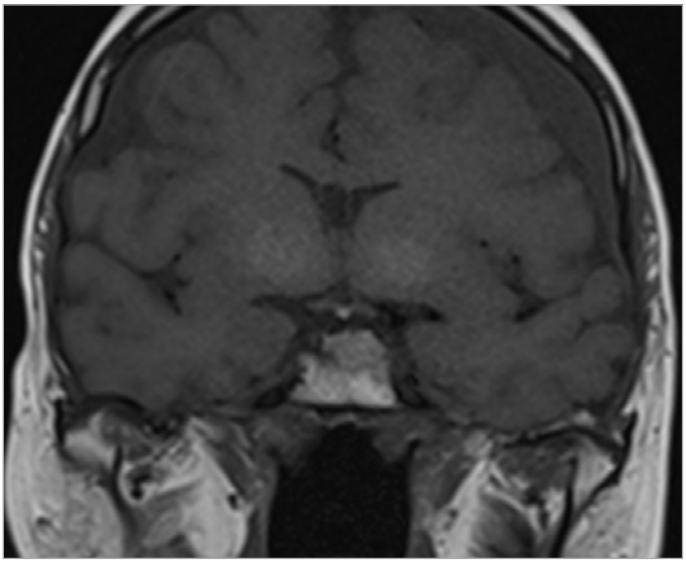

***Figure 1.*** *Hypophysis MRI coronal.*

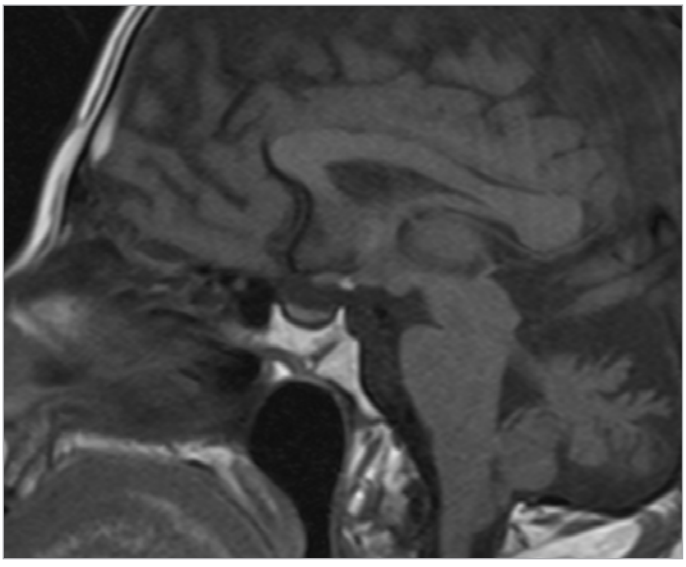

***Figure 2.*** *Hypophysis MRI t1 sagittal. Loss of pituitary stalk shown.*

[Abstract:1902]

## BODY MASS INDEX AND HYPOPHOSPHATEMIA IN PATIENTS HOSPITALIZED AT AN INTERNAL MEDICINE CLINIC

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**Summary:** Phosphate is one of the most vital yet overlooked electrolytes, participating in fundamental biochemical processes. Phosphate depletion (serum phosphate <2.5 mg/dl) has plenty consequences, including prolonged hospital stay and increased mortality. However, hypophosphatemia's association with certain clinical characteristics such as the body mass index (BMI) is not thoroughly investigated, though a negative correlation is suggested with several mechanisms involved.

**Purpose:** Purpose of our study was to examine the correlation between hypophosphatemia and patients' BMI.

**Methods:** This is a prospective study of 176 persons with hypophosphatemia, either on admission or during hospital stay, who were consecutively hospitalized at the 2nd Department of Internal Medicine of University Hospital of Ioannina. BMI was recorded in all patients (in kg/m$^2$), as part of the Malnutrition Universal Screening Tool (MUST) evaluation of their nutritional status and was accordingly categorized in subgroups of values <18.5, 18.5-20 and >20.

**Findings:** 126 patients presented hypophosphatemia upon admission and 50 persons during their hospitalization. For the patients with hypophosphatemia on admission, 41.3% had BMI>20, 46.8% reported BMI 18.5-20 and just 11.9% had BMI<18.5%. For those with phosphate depletion during hospitalization, 56% had BMI>20, 36% had BMI 18.5-20 and only 8% had BMI<18.5. Moreover, for the patients with hypophosphatemia throughout their hospital stay, the univariate analysis identified BMI>20 as a risk factor for phosphate depletion during hospitalization (OR 0.4 CI 0.19-0.82).

**Conclusions:** The negative correlation of BMI and phosphate is described and may be attributed either on inadequate protein intake, higher metabolic needs, or increased leptin levels.

**Keywords:** *hypophosphatemia, body mass index (BMI), malnutrition universal screening tool (MUST), leptin*

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[Abstract:1914]

## HYPERTRIGLYCERIDAEMIA: THE TIP OF THE ICEBERG

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21-year-old woman with history of type 2 diabetes mellitus, mixed dyslipidaemia with severe hypertriglyceridemia, obesity and hepatic steatosis with multiple secondary acute pancreatitis.

The patient began study by Internal Medicine for severe hypertriglyceridemia (triglycerides 5,560 mg/dl) complicated by eleven episodes of severe acute pancreatitis. She had non-compliance with lifestyle habits maintaining a poor metabolic control and was receiving hormonal treatment for sex change. Due to the severity of the hyperlipidaemia and the lack of response to treatment, a genetic study was performed to rule out primary causes of hypertriglyceridemia. The study revealed polymorphisms for the APOA4 and LPL genes that predispose to developing severe hypertriglyceridemia.

In most patients, severe hypertriglyceridemia develops through a combination of environmental factors and predisposing genetic variations. Polygenic family inheritance, in addition to lifestyle factors, can develop a more aggressive phenotype with a greater number of complications, including pancreatitis.

Secondary causes of hypertriglyceridemia are more prevalent than primary causes and must be identified and treated to reduce the risk of cardiovascular events. The main secondary factors include alcohol consumption, tobacco, high-fat diet, poorly controlled diabetes, metabolic syndrome and oestrogens, several of which are present in this patient.

Statins are the first step treatment, as well as fibrates and omega-3 fatty acids. New therapies indicated for severe forms of familial hereditary hypertriglyceridemia are being developed, such as pemafibrate, volanesorsen, and evanicumab.

*Keywords: hypertriglyceridemia, acute pancreatitis, secondary causes of hypertriglyceridemia*

[Abstract:1932]

## A CUSHING'S DISEASE CASE PRESENTING WITH DYSPNEA: WHEN SHOULD I CONSIDER *PNEUMOCYSTIS JIROVECII* PNEUMONIA (PJP)?

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**Case Description:** A 61-year-old male patient presented to the emergency department with complaints of weakness, fatigue, shortness of breath, productive cough, and chest pain. He was evaluated for hypokalaemia and metabolic alkalosis at an external endocrinology clinic, where Cushing's syndrome was considered (Table 1). An adrenal adenoma and a microadenoma in the posterior pituitary were detected in MRI. The patient was admitted with a preliminary diagnosis of hypoxic pneumonia. Considering PJP, he was initiated on trimethoprim-sulfamethoxazole (TMP-SMZ) treatment doses, 80 mg prednisolone, and low molecular weight heparin (LMWH).The patient was transferred to the intensive care unit when respiratory requirements increased during follow-ups. Sedation with etomidate was recommended for severe hypercortisolaemia symptoms in the intubated patient, but it could not be obtained before the patient succumbed in the ICU follow-ups.

**Diagnostic Pathways:** On physical examination he had buffalo hump, moon face, and plethora, there was bilateral pretibial edema, and bilateral lung sounds were diminished. Laboratory findings revealed a leucocytosis, lymphopenia, increase in LDH and ESR. Chest CT scan revealed a spiculated lesion in the left lung, bilateral alveolar/interstitial infiltrates and air cysts. We performed a bronchoscopy considering PJP, polymerase chain reaction (PCR) analysis of the bronchoalveolar lavage fluid detected 377,343 copies/µL of *Pneumocystis jirovecii*.

**Discussion and Learning Points:** Ectopic Cushing's syndrome presents as a rapidly progressing condition with life-threatening thrombotic events and severe opportunistic infections. Even in the absence of clinical symptoms, suspected patients should be evaluated for LMWH and TMP-SMZ prophylaxis. In cases of acute worsening respiratory distress, opportunistic infections such as PJP, in addition to emboli, should always be considered.

*Keywords: Cushing's syndrome, ectopic ACTH syndrome, Pneumocystis jirovecii pneumonia (PJP)*

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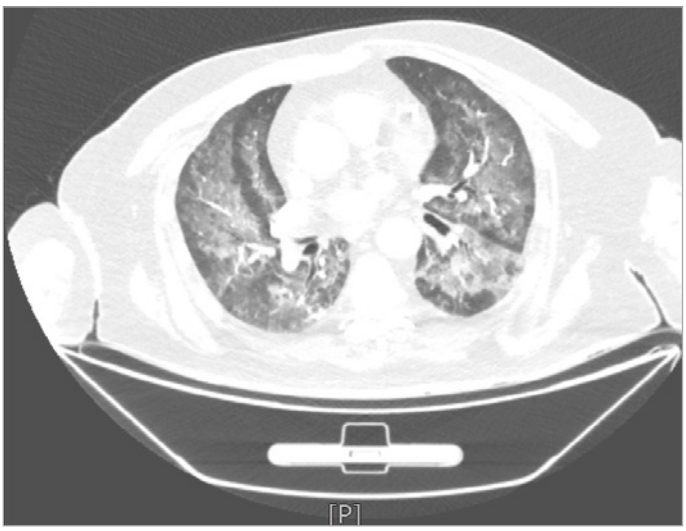

*Figure 1.*

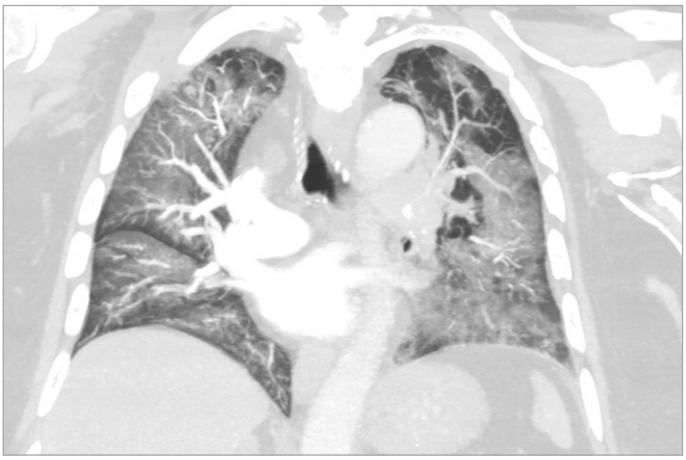

*Figure 2.*

| Parameter | Patient's Results | Reference Range |
|---|---|---|
| Night-time cortisol | 42-48 µg/dL | 2.47-11.9 µg/dL |
| Basal cortisol | 70 µg/dL | 4.82- 19.5 µg/dL |
| Plasma ACTH | 113-107-127 ng/L | 7.2- 63.3 ng/L |
| 24-hour free urinary cortisol | 1405 µg/24 h | <130 ug/24 h |
| 2-day 2 mg DST (dexamethasone suppression test) | 80 µg/dL | |

***Table 1.*** *Further tests for evaluating Cushing's syndrome.*

[Abstract:1938]

## EFFECT OF INTERMITTENT FASTING ON BODY COMPOSITION: COMPARISON BETWEEN RAMADAN AND 16-HOURS INTERMITTENT FASTING MODELS

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**Background:** Intermittent fasting (IF) has been gaining popularity as losing weight strategy. We recently reported that 28/30-day Ramadan IF (RIF) improved body composition and gastrointestinal motility. Here, we compared two models of IF on body composition.

**Methods:** Between March and May 2023, 34 healthy subjects aged 34.5±1.8 yrs, BMI 25.9 kg/m$^2$ (range: 18.5-37.6) underwent either RIF (N=18) or 16-hours intermittent fasting (16h-IF, N=16) during 30 days. Caloric intake was assessed at baseline, 15, 30, 45, 60, and 90 days. Anthropometric measures (BMI, waist and abdominal girth, hip), serum insulin, glucose, cortisol, non-esterified fatty acid (NEFA), body fat composition by bioelectrical impedance analysis (BIA) and subcutaneous/visceral fat distribution by quantitative ultrasonography were assessed at baseline and 30 days.

**Results:** In RIF and 16h-IF, respectively, we observed a decrease of caloric intake (at 15, 30, 45, 60, and 90 days, -44%, -23%, -18.9%, -25%, -6% vs. -20%, -15%, -13%, -16%, +0.5%), and body weight (at 30 and 90 days, -4%, -5% vs. -2%, -2%) (P<0.05 within and between IF groups). Waist, abdominal girth, hip significantly decreased in RIF but not in 16h-IF. NEFA tended to increase, and body composition was comparable in both groups. Subcutaneous fats decreased only in RIF while visceral fats significantly decreased in both IF groups (0.001<P<0.01).

**Conclusions:** In healthy subjects, IF is associated with decreased caloric intake, mild weight reduction and especially visceral fat deposition. More pronounced effects occur with RIF regimen. Further studies urge to verify the effects of IF in weight-cycling and long-term management of obesity.

**Keywords:** *Ramadan intermittent fasting, 16-hours Intermittent fasting, body composition*

[Abstract:1956]

## THE ASSOCIATION OF NORMAL, OVERWEIGHT, AND OBESE PHENOTYPES AND FOOD ADDICTION WITH SLEEP QUALITY

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**Objective:** Poor sleep quality (SQ) is associated with significant adverse health outcomes. Food addiction (FA) is associated with body mass index (BMI) and obesity phenotypes. Data on the relationship of FA and SQ are limited. This study examined the relationship between normal, overweight and obesity phenotypes and FA with poor SQ.

**Methods:** A cross-sectional study with prospective enrolment was performed. Subjects between the ages of 18-65 without active neuropsychiatric symptoms were included. FA was assessed with the Yale Food Addiction Scale 2.0, and SQ was assessed with the Pittsburgh Sleep Quality Index. The primary outcome was the adjusted relation of FA with SQ.

**Results:** The study included 258 participants (median [IQR] age: 36 [21], female: 57.0%). The proportion of normal, overweight,

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and obese participants was 49.2%, 31.8% and 19.0%. Age, education, hypertension, diabetes mellitus, dyslipidaemia, glomerular filtration rate, multimorbidity, polypharmacy and FA differed across three BMI categories. The prevalence of FA and SQ were 38.8% and 64.0%, respectively. There was no significant relationship between SQ and BMI categories (p=0.837). An age and gender-adjusted relationship was found between FA and BMI. SQ showed univariate associations with regular exercise history, neuropsychiatric disease history and FA. In multivariate analysis, regular exercise (OR: 0.241, 95% CI: 0.118-0.495, p<0.001) and FA (OR: 1.845, 95% CI: 1.012-3.362, p=0.045) were the independent predictors of poor SQ.

**Conclusions:** This study showed that FA and poor SQ were quite common among adult internal medicine outpatients. Regular exercise was inversely, and FA was positively associated with poor SQ.

*Keywords: body mass index, obesity, sleep quality, food addition*

[Abstract:1969]

## EVALUATION OF THE RELATIONSHIP BETWEEN PREALBUMIN/FIBRINOGEN RATIO AND DIABETIC NEPHROPATHY IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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**Purpose:** To compare prealbumin / fibrinogen ratio (PFR) of diabetic patient populations with or without diabetic nephropathy.

**Methods:** People with type 2 diabetes who attended to the internal medicine outpatient clinic were enrolled in the study. Two groups were formed according to the proteinuria of the patients: diabetic nephropathy and non-nephropathy group. Diabetic nephropathy was calculated using the mathematical formula of spot urine albumin/spot urine creatinine x100. Patients with proteinuria above 200 mg/g were considered to have nephropathy. PFR was simply calculated by dividing prealbumin by fibrinogen.

**Results:** A total of 152 patients who attended to our outpatient clinic were enrolled in the study. There were 68 patients in diabetic nephropathy group and 84 in non-nephropathy group. The prealbumin/fibrinogen ratios (PFR) were significantly lower in the nephropathic group [0.061 (0.02-0.16)] than the non-nephropathic group [0.0779 (0.01-0.75)] (p=0.002).

**Conclusions:** We suggest that decreased levels of PFR can indicate diabetic nephropathy in subjects with type 2 diabetes mellitus.

*Keywords: diabetic nephropathy, inflammation, prealbumin to fibrinogen ratio*

[Abstract:1974]

## DIAGNOSTIC VALUE OF HALP SCORE IN DETECTING DIABETIC NEPHROPATHY IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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**Background:** The prevalence of Type 2 Diabetes Mellitus (DM) and mortality due to diabetic complications are increasing in the world. Haemoglobin, albumin, lymphocyte and platelet (HALP) score has been used to predict the prognosis in several types of cancers for the last few years. We aimed to reveal whether HALP score has high sensitivity and specificity in detection of diabetic nephropathy.

**Methods:** We retrospectively analysed and compared the HALP scores of the type 2 diabetes mellitus patients with and without diabetic nephropathy. Moreover, we sought correlation between HALP score and fasting glucose, glycated haemoglobin (HbA1c), and estimated glomerular filtration rate (eGFR).

**Results:** A total of 356 DM patients: 162 with nephropathy and 194 without nephropathy were included in the study. The HALP score was 44.86 (4.5-119.9) in the nephropathic group, while it was 55.14 (13.2-173.7) in the non-nephropathic group (p<0.001). HALP score was negatively correlated with HbA1c (r=-0.66, p=0.003) and fasting glucose (r=-0.65, p=0.002), while positive correlation was found between HALP score and eGFR (r=0.13, p=0.02). HALP score lower than 45.9%, have 73% sensitivity and 52% specificity in detecting diabetic nephropathy (AUC: 0.64, p<0.001, 95%CI: 0.59-0.70).

**Conclusions:** We suggest that HALP score can make a simple and easy to assess marker for diabetic nephropathy in addition to standard tests.

*Keywords: diabetes mellitus, microvascular complication, diabetic nephropathy*

[Abstract:1978]

## COULD SYSTEMIC INFLAMMATORY INDEX PREDICT DIABETIC KIDNEY INJURY IN TYPE 2 DIABETES MELLITUS?

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**Background:** The systemic inflammatory index (SII) is a new inflammatory marker that has been the subject of various studies in diseases with chronic inflammation. Diabetic nephropathy is a disease associated with chronic inflammation. We aimed to evaluate the relationship between SII and diabetic nephropathy.

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**Methods:** Healthy individuals for control and patients with diabetes who applied to our outpatient clinic were included in the study. Diabetic patients were divided into two groups: those with and without diabetic nephropathy. The SII values and other characteristics of the three groups were compared.
**Results:** There were 539 participants, of which 126 had type 2 diabetes mellitus with diabetic kidney injury, 227 had type 2 diabetes mellitus without diabetic kidney injury,186 were healthy controls. The median ages for each group were 59 (41–86) for those with DKI, 58 (29–76) for those without DKI, 53 (18–76) for the control group. Age was found to be statistically different between each group ($p < 0.001$).
The median SII value for those with DKI was 584 (178–4819); for those without DKI, it was 282 (64–618); and for the control group, it was 236 (77.5–617) ($p < 0.001$). SII was significantly and positively correlated with BMI, weight, blood glucose, HbA1c, CRP, and creatinine, and negatively correlated with the glomerular filtration rate (GFR) value. SII values higher than 336 have 75% sensitivity and 70% specificity in detecting DKI.
**Conclusions:** The SII value can predict diabetic kidney injury in diabetics, and it can be used as an adjunctive diagnostic tool.

*Keywords:* *diabetic kidney injury, inflammation, systemic inflammatory index*

[Abstract:1991]

## EVALUATION OF THE EFFECT OF INTERMITTENT FASTING ON CLINICAL AND LABORATORY PARAMETERS IN METABOLIC SYNDROME

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**Aim:** We aimed to evaluate the effect of nutrition, known in the literature as 'intermittent fasting (IF)', on the clinical and laboratory parameters of patients with metabolic syndrome.
**Methods:** Patients diagnosed with metabolic syndrome who applied to our outpatient clinic were included in the study. Individuals were planned to be fed in any 8–10-hour period of the day that they were individually suitable for, without interfering with the number of meals, what they ate, or the treatment they were receiving, if any, and to remain hungry for the remaining 14-16 hours of the day. Anthropometric measurements of the patients such as initial weight, body mass index (BMI), waist circumference, hip circumference, laboratory tests were recorded and the initial and 3rd month values were compared statistically.
**Results:** A total of 15 patients, 5 males and 10 females, participated in our study. The average age of the patients was 57 (35-73). When the initial and 3rd month clinical findings of the patients were evaluated, a significant difference was found between weight, BMI, waist circumference and hip circumference ($p<0.05$ for each). When the initial and 3rd month laboratory data of the patients were evaluated, it was seen that there was a significant difference between HDL, HbA1c, fasting glucose, uric acid, AST and ALT values ($p<0.05$ for each).
**Conclusions:** Intermittent nutrition has a significant effect on improving clinical and laboratory parameters at metabolic syndrome. We think that intermittent feeding should be recommended along with other lifestyle changes to patients with metabolic syndrome.

*Keywords:* *Intermittent fasting, metabolic syndrome, nutrition*

| | Initial values (standard deviation ±) | 3rd month values (standard deviation ±) | p value |
|---|---|---|---|
| Weight (kg) | 90.2 (±16.5) | 84.3 (±15.2) | <0.001 |
| Body Mass Index | 33.6 (±4.9) | 31.4 (±4.6) | <0.001 |
| Waist circumference (cm) | 110.7 (±9.4) | 102 (±8.7) | <0.001 |
| Hip circumference (cm) | 117.3 (±10.8) | 111 (±8.6) | 0.002 |
| Fasting glucose (mg/dl) | 109.2 (±15.3) | 98.6 (±10.2) | 0.041 |
| HbA1c (%) | 6.2 (±0.8) | 5.8 (±0.4) | 0.042 |
| HDL-Cholesterol (mg/dl) | 56.2 (±11.9) | 50.9 (±10.5) | 0.040 |
| AST (U/L) | 23.6 (±10.8) | 18.9 (±6.3) | 0.017 |
| ALT (U/L) | 34.7 (±29.8) | 23 (±16.6) | 0.016 |
| Uric acid (mg/dl) | 6.5 (±1.4) | 5.9 (±0.9) | 0.035 |

***Table 1.*** *Summary of Results.*

[Abstract:2020]

## EFFECT OF SGLT-2 INHIBITORS USE ON ANTHROPOMETRIC MEASUREMENTS AND BLOOD GLUCOSE REGULATION IN OBESE AND NON-OBESE TYPE 2 DIABETES MELLITUS PATIENTS

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**Aim:** In our study, we aimed to evaluate the effect of SGLT2 in use on diabetes regulation in obese and non-obese diabetic patients using anthropometric measurements.
**Methods:** Obese (BMI ≥30) and non-obese (BMI <30) patients diagnosed with type 2 diabetes mellitus who applied to our outpatient clinic were planned to be included in the study. SGLT2 inhibitor was added to the patients' existing diabetes treatment without interfering with the number of meals, food intake, or exercise programs. Patients' initial and the 3rd month anthropometric measurements and laboratory values were compared statistically between the groups.
**Results:** The study group consisted of 40 people that covered 20 obese and 20 non-obese. BMI, weight, waist and hip circumference, fat (%) values of the patients were found to be significantly lower at the 3rd month after treatment compared to initial statistically. Muscle values (%) of the patients were found to be significantly higher at the 3rd month control of the treatment compared to the baseline statistically ($p<0.001$). The difference between HbA1c and glucose levels of patients before and in the

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3rd month of treatment was found to be statistically significantly lower (p<0.001).
The difference between the study group's CRP, ALT, LDL, total cholesterol levels before and in the 3rd month of treatment was found to be statistically significantly lower (consecutively, p=0.009 p=0.022 p=0.003 p=0.021).
**Conclusions:** We consider that the use of SGLT 2 inhibitors will be beneficial, especially in the treatment of obese diabetic patients.

*Keywords:* *obesity, type 2 diabetes mellitus sodium-glucose cotransporter 2 inhibitors, waist circumference measurement, bioelectric impedance measurement*

[Abstract:2021]

## AN AUTOIMMUNE POLYGLANDULAR SYNDROME PRESENTED WITH POLYNEUROPATHY

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**Case Description:** A 43-year-old female patient, who had no known disease other than vitiligo, applied to the emergency department with difficulty in walking. Her cervical-thoracal-lumbar and cranial scanning was normal. Her complete blood count drown revealed pancytopenia. The patient was admitted to our clinic for further investigation of pancytopenia.
**Clinical Hypothesis:** Autoimmune polyglandular syndrome (APS) type 3B-3C presented with polyneuropathy.
**Diagnostic Pathways:** In her complete blood count and biochemistry test was as follows WBC: 1950, neutrophils: 820, haemoglobin: 9.1 g/dl, mcv: 86.4 plt: 104.000, direct coombs: negative, indirect bilirubin: 0.93 mg/dl, LDH: 2564 U/l, vitamin B12 <100 pg/ml, folate: 14 ng/ml, iron: 57 µg/dl, ferritin: 1084 ng/ml, haeptoglobulin: 27.7 mg/dl, TSH: 7.77 miu/ml, fT3 and fT4 were found to be normal.
Urea-creatinine values were normal. B12 vitamin treatment was started for neuropathic pain and pancytopenia due to B12 deficiency. Antiparietal cell antibody was positive and celiac markers were negative.
Endoscopy revealed atrophic gastritis. Furthermore, with regard to her abnormal thyroid hormone test results, anti-TPO was sent and resulted positive. Acth-cortisol levels were normal and adrenal insufficiency was excluded. The patient, who had pernicious anaemia, Hashimoto's thyroiditis and vitiligo was diagnosed with APS type 3B-3C.
**Discussion and Learning Points:** APS are rare immune-mediated polyendocrinopathies characterized by simultaneous malfunction of several endocrine glands and nonendocrine organs. The patient who was admitted with polyneuropathy and was examined for pancytopenia, was diagnosed with pernicious anaemia and chronic autoimmune thyroiditis based on imaging and laboratory findings. We must consider APS in patients with autoimmune diseases and patients should also be screened for other autoimmune diseases.

*Keywords:* *Hashimoto's thyroiditis, non-immune haemolytic anaemia, pernicious anaemia, polyneuropathy*

[Abstract:2034]

## XEROPHTHALMIA AND NIGHT BLINDNESS IN THE INTERNAL MEDICINE CONSULTATION

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**Case Presentation:** A 52-year-old patient with no personal or family history, except for active smoking, was referred due to night blindness and xerophthalmia for the past 3 months for the study of a vitamin deficiency. The patient reported maintaining a complete and varied diet without digestive alterations.
**Clinical Hypothesis:** Night blindness due to vitamin deficiency.
**Diagnostic Pathways:** Blood tests were conducted, including a complete blood count, creatinine, ions, transaminases, coagulation profile, thyroid hormones, lipids, iron kinetics, folic acid, vitamin B12, and E, all of them normal meanwhile a deficiency in vitamin A (0.05 µg/mL), vitamin D (9.9 ng/mL), vitamin K and faecal pancreatic elastase were identified. Cholangiopancreatic resonance imaging was normal completing the study with faecal calprotectin, small intestinal bacterial overgrowth test, viral serologies, and autoimmune markers (including celiac antibodies), all of which were negative. The simultaneous deficiency of fat-soluble vitamins and pancreatic elastase directed the study towards ruling out causes of exocrine pancreatic insufficiency (EPI), which can result from loss of pancreatic parenchyma (chronic pancreatitis, cystic fibrosis), obstruction of the pancreatic duct (tumours), decreased pancreatic stimulation, or inactivation of pancreatic enzymes, among other causes. The development of EPI has also been associated with alcohol and tobacco consumption.
**Discussion:** The diagnosis of night blindness due to vitamin A deficiency secondary to EPI was established, initiating enzymatic and vitamin replacement therapy, resolving night blindness and vitamin levels in 3 months. Despite being an uncommon condition in developed countries, vitamin deficiencies should be considered in the differential diagnosis of patients with intestinal malabsorption.

*Keywords:* *night blindness, xerophthalmia, vitamin deficiency, exocrine pancreatic insufficiency*

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[Abstract:2040]

# THE EFFECT OF HYPERURICEMIA ON THE CLINICAL MANIFESTATIONS OF OSTEOARTHRITIS

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**Purpose:** to evaluate the effect of hyperuricemia (HU) on the clinical manifestations of knee osteoarthritis (OA) in a multicentre program.

**Methods:** The study included 260 patients 40-75 y. with knee OA (according to ACR) of X-ray stage I-III who signed an informed consent. The mean age was 55.7±10.2 y., the duration of OA was 4 (1-10) y. An individual card was filled out for each patient, including assessment of pain in the knee according to VAS, WOMAC and KOOS.

**Findings:** HU (an increase in the level of uric acid (UC) in the blood serum of more than 360 mmol/l (> 6 mg/dl) was detected in 77 individuals (29.6%). Patients with HU had higher pain intensity according to VAS, total WOMAC and its components (pain and functional insufficiency), worse values KOOS (table 1). In patients with HU, OA of the hip joints was more often detected (OR = 1.42, 95% CI 1.03–1.96, p =0.04) and varus deformity of the knee joints (OR = 2.39, 95% CI 1.24–4.6, p = 0.01). The Spearman correlation analysis (p<0.05) confirmed the relationship between HU and the duration of OA (r=0.19), X-ray stages (r=0.13), varus deformity of the knee joints (r=0.17), VAS pain (r=0.15), WOMAC total (r=0.18), KOOS (r=-0.15).

**Conclusions:** HU is associated with more severe clinical manifestations of OA. Deciphering the mechanisms that determine the relationship between HU and OA is essential for the development of new methods of prevention and treatment of these diseases.

*Keywords:* *hyperuricemia, osteoarthritis, pain*

| Parameters | Patients with HU (n = 77) | Patients without HU (n = 183) | p |
|---|---|---|---|
| Age, y., Me | 59 [51.5; 65] | 56 [46; 63] | 0.06 |
| Duration of OA, y., Me | 7.0 [3; 12] | 4 [1; 10] | 0.003 |
| Body mass index, kg/m², Me | 30.5 [27.7; 36.3] | 28.3 [24.8; 32] | 0.001 |
| Varus deformity of the knee joints, % | 22.2 | 9.3 | 0.01 |
| Hip OA, % | 49.2 | 34.7 | 0.04 |
| VAS pain, mm, Me | 50 [38; 60] | 43 [20; 57] | 0.02 |
| WOMAC pain, mm, Me | 170 [120; 240] | 140 [56; 210] | 0.005 |
| WOMAC functional insufficiency, mm, Me | 632.5 [451; 870] | 529 [154; 780] | 0.003 |
| Total WOMAC, mm, Me | 877.5 [630; 1215] | 710 [284; 1090] | 0.005 |
| KOOS, points, Me | 52 [43; 62] | 58 [47; 74] | 0.02 |

***Table 1.*** *Comparative characteristics of patients with OA who had and did not have HU.*

[Abstract:2062]

# PRIMARY ALDOSTERONISM AND CARDIOPULMONARY ARREST

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39-year-old woman with a five-year history of resistant hypertension, never studied before. She was admitted for sudden syncope without preceding symptoms. On examination, nothing remarkable found. The ECG showed a "Torsades des Pointes" and a low plasma potassium level (1.7 mmol/L); then she suffered a cardiopulmonary arrest, fortunately being resuscitated.

We considered the differential diagnosis of hypokalaemia, being guided by her hypertension history. Our main option was a mineralocorticoid excess syndrome, taking into account primary/secondary aldosteronism, Cushing syndrome and others as pheochromocytoma.

Evaluation began with hormonal screening: plasma aldosterone concentration and plasma renin activity, which showed elevated aldosterone levels while renin activity was low. The CT scan showed nodules in both adrenal glands, both of them suggestive of being adenomas. Autonomous cortisol secretion and elevated metanephrines production were excluded.

Thus primary aldosteronism was confirmed. The patient began treatment with spironolactone resulting in optimal blood pressure control and kalemia within the normal range.

Primary aldosteronism is one of the most prevalent aetiologies behind a secondary hypertension and has a strong association with high cardiovascular risk. This case report shows the value of studying every resistant hypertension in order to exclude secondary causes; thereby, just a spironolactone pill could have avoided cardiac arrest.

*Keywords:* *aldosteronism, potassium, cardiopulmonary arrest*

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[Abstract:2091]

## EVALUATION OF HANDGRIP STRENGTH AS A SARCOPENIA PARAMETER IN INDIVIDUALS WITH OBESITY

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**Introduction:** Sarcopenic obesity is a combination of obesity and decreased muscle mass/function. Handgrip strength test is a method for measuring muscle function. This study aims to evaluate handgrip strength as a parameter for sarcopenia in individuals with obesity.

**Methods:** All patients seen in the obesity centre in the previous month were included as the case group and age-gender matched patients without obesity were randomly selected as the control group. Age and gender were recorded and height, weight and fat percentage (measured using a fat monitor) were assessed. BMI was calculated as kg/m² and handgrip strength was measured using a hand dynamometer. Results were analysed using SPSS.

**Results:** A total of 76 individuals participated in the study (60 F, 16 M). The case group included 46 individuals (35 females, 11 males), while the control group comprised 30 individuals (25 females, 5 males). Table 1 summarizes age, gender, BMI, fat percentage, and handgrip results. BMI was higher in the case group compared to the control group for both female and male patients. However, there was no statistically significant difference in handgrip results between the groups for both genders.

**Conclusions:** Our study found no significant difference in handgrip strength between individuals with and without obesity. This lack of difference may be attributed to the relatively young study population and the utilization of related muscle groups in daily activities, even in the absence of resistance exercise. The evaluation of muscle mass/function should be integrated into obesity assessments, and exercise prescriptions should be modified accordingly for individuals with obesity.

*Keywords:* *sarcopenic obesity, hand grip strength, sarcopenia, obesity*

| Parameter | Female case | Female control | Male case | Male control |
|---|---|---|---|---|
| Number of patients (n) | 35 | 25 | 11 | 5 |
| Age (years) | 44.88±12.36 | 39.36±10.45 | 48.3±11.15 | 40±16.67 |
| BMI (kg/m²) | 36.45±5.33 | 22.36±2.17 | 35.39±4.64 | 24.4±0.79 |
| Fat percentage (%) | 42.70±5.81 | 28.33±7.12 | 34.77±10.79 | 20.98±6.70 |
| Handgrip strength (kg) | 18.21±4.69 | 17.36±5.11 | 34.57±10.79 | 33.64±7.01 |

***Table 1.*** *Study results*

[Abstract:2094]

## THYROID STORM

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Thyroid storm is a severe and rare clinical condition resulting from the abrupt and potentially fatal exacerbation of hyperthyroidism, with systemic repercussions and a mortality rate ranging from 10 to 30%. Diagnosis is fundamentally clinical, with notable manifestations including fever, tachycardia, restlessness, delirium, and coma. The authors describe a case of thyroid storm.A 49-year-old woman presented to the Emergency Department with chest pain, palpitations, and exertional dyspnoea. She had undergone electrical cardioversion for paroxysmal atrial fibrillation approximately 4 weeks prior and was prescribed amiodarone 200 mg OD and rivaroxaban 20 mg OD. On admission, her blood pressure was 117/83 mmHg; heart rate ranged between 130 and 150 bpm with no other abnormalities on physical examination. Echocardiography revealed preserved biventricular function without segmental kinetic abnormalities. Laboratory tests showed a NT-proBNP level of 1968 pg/mL (normal range <125), and no other alterations. She scored 50 on the *Burch-Wartofsky* scale. A diagnosis of hyperthyroidism with thyroid storm was established. Treatment included propylthiouracil, Lugol's solution, cholestyramine, corticosteroids, propranolol, and B-complex vitamins. As a complication, she developed heart failure triggered by atrial fibrillation with a rapid ventricular response.Thyroid ultrasound revealed a gland with dimensions at the lower limit of normal, diffusely heterogeneous without evidence of thyroid antibodies. The patient experienced clinical improvement, hemodynamic stability, and heart rates stabilized between 78-97 bpm, with resolved symptoms.This case underscores the importance of promptly recognizing the clinical picture and, if there is suspicion, not delaying its assessment and treatment, as it may lead to fatal complications.

*Keywords:* *thyroid storm, tachycardia, hyperthyroidism, palpitations, atrial fibrillation*

 **DOI:** 10.12890/2024_V11Sup1

[Abstract:2095]

# A REAL-LIFE COMPARATIVE STUDY OF THE USE OF SEMAGLUTIDE IN SUBCUTANEOUS AND ORAL FORMULATIONS IN PATIENTS WITH TYPE 2 DIABETES: IS TOLERANCE THE SAME IN BOTH FORMULATIONS?

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Glucagon-like peptide-1 receptor agonists (GLP-1 agonists) potently lower HbA1c, reduce weight and have renal and cardiovascular benefits. Recently, an oral formulation of semaglutide has been developed. However, there are no studies comparing directly both formulations. In this context, we proposed to assess in real life whether the reported frequency of adverse effects due to digestive intolerance would be similar. We included outpatients who started oral semaglutide (oSEMA) or subcutaneous formulation (scSEMA) between November 2022 and January 2023 without previous GLP-1 agonists. Baseline characteristics were similar in both group. A longer time of evolution of T2DM in scSEMA (12.7±11.1 years vs. 4.6±3.8, p=0.006) stands out. Synchronous anti-diabetic treatment was similar. In both formulations, maximum doses were achieved in most patients. It should be noted that the median time to reach maximum dose was 8.7 weeks with oSEMA and 20.7 weeks with scSEMA. This suggests that, in real clinical practice, dose escalation does not appear to follow the recommendations for weekly increases up to maximum doses.Concerning the adverse effects, digestive intolerance was the most frequent reported. Lower digestive intolerances were reported with scSEMA (overall: n=4 (9.5%). oSEMA: n=3 (25%), scSEMA: n=1 (3.3%), p=0.018). We suggest that this could be because patients with scSEMA took longer to reach maximum doses with more gradual increases, which could have improved tolerance. In other words, faster dose escalation with oSEMA could have led to increased digestive intolerances. However, this hypothesis could not be proven in our study and more specific studies are needed to test it.

**Keywords:** *semaglutide, digestive intolerance, glucagon-like peptide-1 receptor agonists, glp-1 agonists, antidiabetic drugs*

| | | Formulation Type | |
|---|---|---|---|
| | Overall, N = 42[1] | Oral, N = 12[1] | SC, N = 30[1] | p-value[2] |
| **AGE** | | | | 0,357 |
| Mean ± SD | 64.3 ± 11.7 | 62.0 ± 10.7 | 65.2 ± 12.1 | |
| Median [25%-75%] | 67.0 [59.0-74.0] | 61.0 [58.8-67.2] | 71.0 [60.0-74.8] | |
| Minimum---Maximum | 32.0---81.0 | 41.0---77.0 | 32.0---81.0 | |
| **GENDER** | | | | 0,731 |
| Male | 17 (40.5%) | 4 (33.3%) | 13 (43.3%) | |
| Female | 25 (59.5%) | 8 (66.7%) | 17 (56.7%) | |
| **HYPERTENSION** | | | | 0,483 |
| | 26 (61.9%) | 6 (50.0%) | 20 (66.7%) | |
| **DYSLIPEMIA** | | | | 0,463 |
| | 29 (69.0%) | 7 (58.3%) | 22 (73.3%) | |
| **OBESITY** | | | | 0,758 |
| No | 6 (14.3%) | 2 (16.7%) | 4 (13.3%) | |
| Grade 1 | 15 (35.7%) | 6 (50.0%) | 9 (30.0%) | |
| Grade 2 | 7 (16.7%) | 1 (8.3%) | 6 (20.0%) | |
| Grade 3 | 10 (23.8%) | 2 (16.7%) | 8 (26.7%) | |
| Grade 4 | 4 (9.5%) | 1 (8.3%) | 3 (10.0%) | |
| **SMOKING** | | | | >0.999 |
| | 9 (21.4%) | 2 (16.7%) | 7 (23.3%) | |
| **PROGRESSION TIME (years)** | | | | 0,006 |
| Mean ± SD | 10.4 ± 10.3 | 4.6 ± 3.8 | 12.7 ± 11.1 | |
| Median [25%-75%] | 8.5 [3.0-13.8] | 4.0 [1.0-6.8] | 11.0 [3.5-17.5] | |
| Minimum---Maximum | 1.0---45.0 | 1.0---12.0 | 1.0---45.0 | |

[1]Mean ± SD; Median [IQR]; n (%)
[2]Wilcoxon rank sum test; Fisher's exact test

*Table 1. Baseline characteristics.*

| | | Formulation type | | |
|---|---|---|---|---|
| | Overall, N = 42[1] | Oral, N = 12[1] | SC, N = 30[1] | p-value[2] |
| **Synchronous Antidiabetic Drugs** | 37 (88.1%) | 11 (91.7%) | 26 (86.7%) | >0.999 |
| **Meglitinides** | 1 (2.4%) | 1 (8.3%) | 0 (0.0%) | 0,286 |
| **Sulfonylureas** | 3 (7.1%) | 0 (0.0%) | 3 (10.0%) | 0,545 |
| **DPP-4 inhibitors (gliptins)** | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | >0.999 |
| **Biguanides** | 32 (76.2%) | 9 (75.0%) | 23 (76.7%) | >0.999 |
| **Thiazolidinediones** | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | >0.999 |
| **Alpha-glucosidase inhibitors** | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | >0.999 |
| **SGLT2 inhibitors** | 20 (47.6%) | 4 (33.3%) | 16 (53.3%) | 0,241 |
| **Insulin** | 10 (23.8%) | 2 (16.7%) | 8 (26.7%) | 0,696 |

[1]n (%). [2]Fisher's exact test; Pearson's Chi-squared test. SC: subcutaneous

*Table 2. Synchronous anti-diabetic drugs.*

| | Formulation type | | |
|---|---|---|---|
| | Oral (N=12)[1] | Ssubcutaneous (N=30)[1] | p-value[2] |
| **Maximum subcutaneous dose of semaglutide** | | | NA |
| 0.25 mg | | 1 (3.3%) | |
| 0.5 mg | | 11 (36.7%) | |
| 1 mg | | 18 (60.0%) | |
| Not available | | 0 | |
| **Maximum oral dose of semaglutide** | | | NA |
| 3 mg | 1 (9.1%) | | |
| 7 mg | 4 (36.4%) | | |
| 14 mg | 6 (54.5%) | | |
| Not available | 1 | | |
| **Weeks to initiation of maximum dose[1]** | | | **0,036** |
| Mean ± SD | 10.0 ± 9.2 | 27.0 ± 23.9 | |
| Median [25%-75%] | 8.7 [4.3-11.0] | 20.7 [4.4-42.5] | |
| Mínimum---Máximum | 0.0---28.3 | 0.0---78.1 | |
| **Continuation of treatment at 6 months** | | | |
| | 8 (66.7%) | 29 (96.7%) | **0,018** |

[1]Mean ± Standard Deviation; Median [IQR]; n (%)

| | | Formulation type | | |
|---|---|---|---|---|
| | Overall, N = 42[1] | Oral, N = 12[1] | SC, N = 30[1] | p-value[2] |
| **Any intolerance** | 5 (11.9%) | 4 (33.3%) | 1 (3.3%) | 0,018 |
| **Gastrointestinal intolerance** | 4 (9.5%) | 3 (25.0%) | 1 (3.3%) | 0,063 |
| **Hepatobiliary alterations** | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | |
| **Hypoglycemia** | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | |
| **Cardiovascular adverse effects** | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | |
| **Skin adverse effects** | 1 (2.4%) | 1 (8.3%) | 0 (0.0%) | 0,286 |
| **Urinary adverse effects** | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | |
| **Other adverse effects** | 1 (2.4%) | 1 (8.3%) | 0 (0.0%) | 0,286 |

[1]n (%). [2]Fisher's exact test. SC: SC: subcutaneous

*Table 3. Maximum doses achieved, time to maximum doses and adverse effects reported.*



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[Abstract:2105]

## IPILIMUMAB PLUS NIVOLUMAB TREATMENT ASSOCIATED ENDOCRINOPATHY: CASE REPORT

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**Case Description:** A 38-year-old male patient with a history of known renal cell carcinoma (RCC) and right nephrectomy has been receiving a combination therapy of ipilimumab and nivolumab for 2.5 months. The patient presented with nausea, vomiting, and impaired consciousness. Acute kidney injury and nonketotic hyperglycaemic state were seen according to laboratory results.
**Clinical Hypothesis:** Immune checkpoint inhibitor(ICI)-associated endocrinopathies.
**Diagnostic Pathways:** The patient's laboratory results were as followings: glucose:770, HbA1c: 7% (>6.5%), urinary ketons were negative, serum osmolarity was 305 mOsm/L, C-Peptide: 0.182 mcg/L (Reference: 1.1-4.4), islet cell antibody: negative, anti-gad: <5 IU/ml (reference: 0-10), TSH:3, 13Miu/l, FreeT4: 0.4ng/L. He was started to intravenous hydration and basal-bolus insulin regimen. Renal functions recovered and patients discharged with basal-bolus insulin regimen. On follow up, his blood glucose was in target range. However, laboratory tests revealed overt hypothyroidism (TSH: 61,3 Miu/l, freeT43: 0.4 ng/Dl, anti-TPO>600I U/L). He was started 25 mcg levotiroxine treatment. Immune checkpoint inhibitors were considered as predisposing factors in the patient with the newly diagnosed diabetes and autoimmune hypothyroidism.
**Discussion and Learning Points:** Due to destruction of pancreatic beta cells, new onset diabetes or acute hyperglycaemic complications of diabetes were reported with immune checkpoint inhibitors. In addition, autoimmune thyroiditis should be kept in mind in patients who are treated with immune-check point inhibitors. Patients who undergo treatment with immunomodulatory therapies should be monitored for the development of endocrine immune-related adverse events.

**Keywords:** *diabetes, hypothyroidism, immune checkpoint inhibitors*

[Abstract:2118]

## SEVERE HYPOTHYROIDISM-INDUCED RHABDOMYOLYSIS: A RARE CASE PRESENTATION

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Hypothyroidism is infrequently reported as a cause of rhabdomyolysis, a serious medical condition where muscle tissue breaks down, releasing its contents into the bloodstream. 35-year-old female with past medical history of hypothyroidism s/p thyroidectomy and schizophrenia, who presented with sudden onset of diffuse cramping and myalgia in bilateral lower extremities, fatigue and generalized weakness for two days. She has not been taking her levothyroxine lately. Patient was severely impatient and irritable. Workup showed elevated creatinine (1.7mg/dL), creatine kinase (6,974 unit/L), thyroid stimulating hormone (120.98 uIU/mL), low triiodothyronine (<1.07 pg/mL) and low free thyroxine (<0.40 nanog/dL). EKG showed flattened T-waves. Management included continuous IV fluids and restarting levothyroxine supplementation. After L-thyroxine therapy, thyroid function tests normalized, muscle strength improved, CK levels were monitored and showed a decreasing trend, which was indicative of the resolution of rhabdomyolysis and renal function tests recovered as well. Rhabdomyolysis may manifest in hypothyroid patients, particularly those with suboptimal adherence to medication. The underlying mechanisms remains unclear. Reports in overt hypothyroidism highlight alterations in muscle structure and function, including reduced activity of enzymes crucial for both anaerobic and oxidative glucose metabolism. Thyroxine has an impact on energy metabolism. Insufficient T4 levels result in abnormal glycogenolysis, mitochondrial oxidative metabolism, and triglyceride turnover. These disruptions, in turn, hinder muscle function, particularly leading to the selective atrophy of type II fibres. Type I hypertrophy may serve as a compensatory response. In cases of severe or prolonged oxidative damage, there's a risk of muscle cell injury and rhabdomyolysis.

**Keywords:** *hypothyroidism, rhabdomyolysis, creatine kinase*

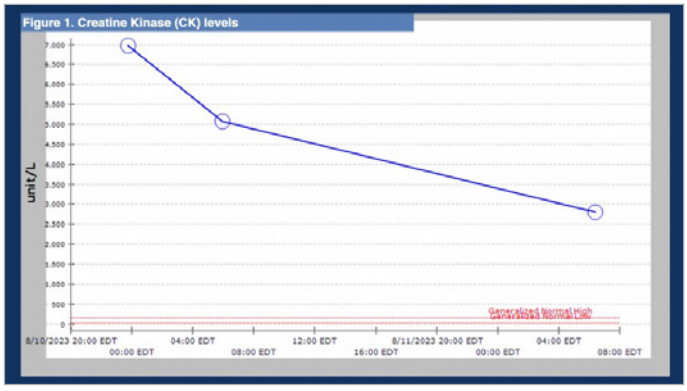


***Figure 1.*** *Creatine Kinase levels.*
*After L-thyroxine therapy, thyroid function tests normalized, muscle strength improved, CK levels were monitored and showed a decreasing trend, which was indicative of the resolution of rhabdomyolysis and renal function tests recovered as well.*

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*Figure 2. Poster.*

[Abstract:2141]

# IDENTIFYING DIFFERENT CAUSES OF HYPONATREMIA

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A 68-year-old female patient with breast carcinoma and squamous cell carcinoma of the tonsil in the past consulted for dizziness.

Physical examination revealed bradylalia and bradypsychia. Laboratory tests showed abnormalities compatible with inappropriate secretion of antidiuretic hormone (SIADH): hyponatremia (105 mEq/L) with low blood osmolality (219 mOsm/kg), high urine sodium (42 mEq/L) with high urine osmolality (124 mosmol/kg) and decreased urea (7 mg/dL) and uric acid (1.5 mg/dL) due to increased renal clearance. Systematic urine analysis and chest X-ray were normal.

The patient was admitted to Internal Medicine department to complete the study of euvolemic hyponatremia. A full body computed tomography (CT) scan was requested for a new tumour screening, although the last imaging control by her oncologist was 6 months ago, and there was not evidence of disease. The chest CT scan revealed a lung mass in the left lower lobe (Figure 1 and 2). Bronchoscopy was performed and found a mameloned, hypervascularised and excreting lesion in the left bronchial system. Biopsies were taken. Pathology results were compatible with microcytic carcinoma, which confirmed the diagnosis of euvolaemic hyponatremia due to inadequate secretion of antidiuretic hormone (SIADH).

We treated our patient with restricted fluid intake, hypertonic saline intravenously, urea at maximum doses and a vasopressin receptor antagonist.

On discharge from inpatient department, the patient was referred to the oncology department for chemotherapy and radiotherapy, after which it was possible to discontinue the vasopressin receptor antagonist and urea treatment, due to resolution of the paraneoplastic SIADH.

*Keywords: hyponatremia, microcytic lung carcinoma, SIADH.*

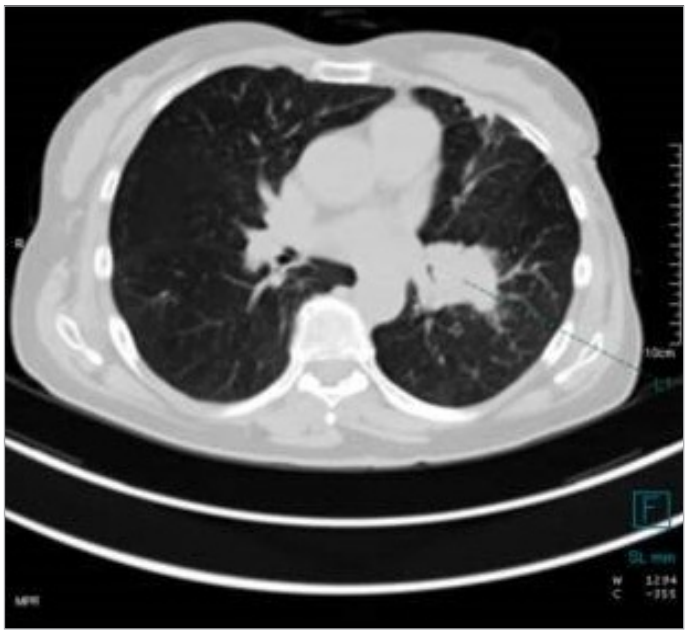

*Figure 1.*

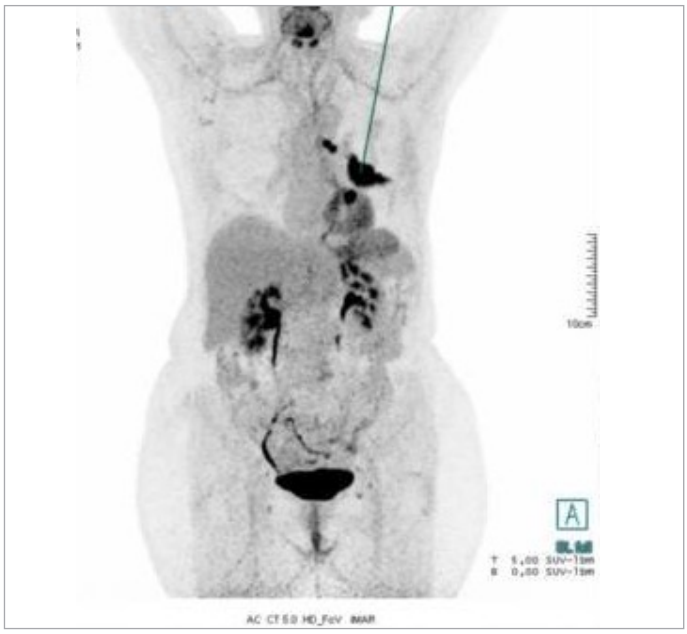

*Figure 2.*



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[Abstract:2180]

## THYROTOXICOSIS DEVELOPING AFTER AUTOLOGUE BONE MARROW TRANSPLANTATION: A CASE REPORT

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Thyrotoxicosis refers to clinical findings caused by excessive amounts of thyroid hormone, regardless of the source.

A 38-year-old female patient was diagnosed with IgD type kappa multiple myeloma and underwent autologous bone marrow transplantation after 5 cycles of daratumumab-bortezomib-cyclophosphamide and dexamethasone treatment. On the 20$^{th}$ day after transplantation, which was requested due to tremor in the hands and accompanying sinus tachycardia, thyroid stimulating hormone <0.005 µIU/mL (0.3 4.2), serum free thyroxine 3.45 ng/dL (0,8-1.7), serum free triiodothyronine 6.66 pg/mL (2-4.4), anti-thyroglobulin antibody 14 IU/Ml (<115), anti-thyroid peroxidase antibody 12 IU/mL (< 35), anti-TSH receptor antibody <0.800 IU/L resulted in. Preschool thyroid tests evaluated as euthyroid. There were no new findings in the thyroid USG of the patient, who has been followed up for multinodular goitre for 3 years, compared to the examination 3 years ago. Thyroid scintigraphy revealed a hyperactive nodule in the lower pole of the right lobe and a hypoactive nodule in the lower pole of the left lobe, and the Tc-99m pertechnetate uptake value at the 20$^{th}$ minute was measured as 0.2% (N% 0.4-3.3). The patient was started on propranolol 3x40 mg/day treatment due to tachycardia and was monitored at the endocrinology outpatient clinic controls.

The mechanisms of thyrotoxicosis after transplantation have not been clearly elucidated, and it is thought to develop through immune-mediated reactions. Although thyrotoxicosis is a temporary condition in these patients, they should be closely monitored with thyroid function tests, as permanent hypothyroidism may occur later in some patients.

*Keywords:* *thyrotoxicosis, autologous bone marrow transplantation, immune-mediated reactions*

[Abstract:2182]

## EFFICACY AND SAFETY OF METFORMIN AS ADJUNCT THERAPY FOR GLYCEMIC CONTROL AND WEIGHT REDUCTION OF ADULT PATIENTS WITH TYPE 1 DIABETES MELLITUS

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**Introduction:** Type 1 diabetes mellitus (T1DM) accounts for at least 5-10% of patients with diabetes, presenting at an earlier onset and needing lifetime insulin supplementation. Metformin improves insulin sensitivity especially in patients with type 2 diabetes. This meta-analysis aims to assess the effect of metformin as an adjunct to insulin therapy in improving the HbA1c, fasting plasma glucose (FPG), weight, body mass index (BMI), low-density lipoprotein (LDL), and daily insulin requirement of patients with T1DM. A systematic literature search was done to retrieve randomized controlled trials on patients aged 18 and above published until October 2023, after which five studies were evaluated and assessed.

**Results:** In patients with T1DM, metformin was shown to have statistically significant reductions in weight (mean difference (MD) = −3.18, 95% confidence interval (CI) = −6.72 to 0.36, p = 0.08) at a dose of 2,000 milligram/day, BMI (MD = −1.01, 95%CI = −1.89 to −0.13, p = 0.02), and daily insulin requirement (MD = −0.91, 95%CI = −1.59 to −0.24, p = 0.008) when taken at a dose of 1,700 milligram/day or when dose is gradually up titrated. Numerical values of HbA1c, FBS, and LDLs were also reduced with the addition of metformin, but analysis on these outcomes showed no statistical significance. Metformin increased the risk of developing adverse hypoglycaemic events, but had no effect on the incidence of diabetic ketoacidosis.

**Conclusions:** The use of metformin as an adjunct may decrease insulin resistance in adult patients with T1DM at a dose gradually up titrated to reach 1,700-2,000 milligram/day.

*Keywords:* *type 1 diabetes mellitus, HbA1c, fasting plasma glucose, weight control, LDL, hypoglycaemia*

 **DOI:** 10.12890/2024_V11Sup1

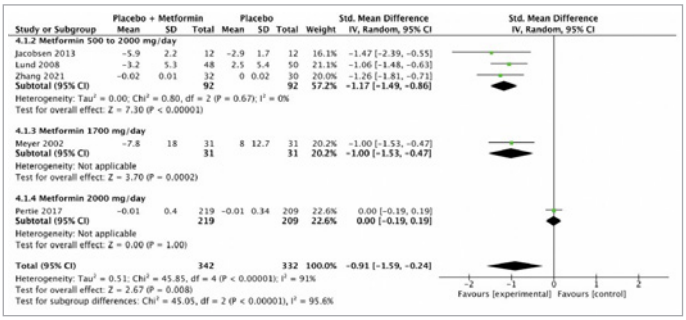


***Figure 1.*** *Forest plot of the comparative efficacy between metformin vs placebo on the total daily insulin requirement at different doses of metformin.*

*All five studies analysed the amount of change in the participants' daily insulin requirement16-20. Among these, a statistically significant reduction in the total insulin dose was observed, with a mean difference of –0.91 (–1.59 to –0.24) at a p-value of 0.008 (Fig. 8). The use of a gradual up titration of metformin dosing as well as metformin 1700 mg/day both revealed a statistically significant reduction in the total daily insulin requirement of the participants, with p-values of < 0.00001 and 0.0002 respectively. These studies all had relatively smaller sample sizes compared to Petrie, 2017. The single study using 2000 mg of metformin per day showed no significant effect on the participant's daily insulin requirement (P = 1.00). However, there was still major heterogeneity among these studies, with an I2 computed at 91%.*

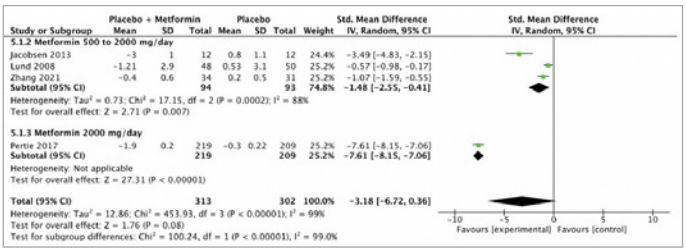


***Figure 2.*** *Forest plot of the comparative efficacy between metformin vs placebo on weight reduction at different doses of metformin.*

*Four out of the five studies discussed the effect of metformin on the participants' weight16,17,19,20, involving a total of 615 participants (Appendix C). As in* ***Figure 6****, a mean difference of – 3.18 (–6.72 to 0.36) was computed, which was not statistically significant (p value of 0.08). However, there was still major heterogeneity for this subset, with an I2 as high as 99%. Based on the subgroup analysis, using the maximum dose of metformin at 2000 mg/day produced a statistically and clinically significant reduction in weight (P < 0.0001). On analysis using all four studies, there was no statistically significant difference between the weight reduction observed in the group using a gradual up titration of metformin and the group using the maximum dose of metformin (P 0.08). A stepwise sensitivity analysis was done to determine whether results of any of these studies were affecting the outcomes. When the study by Pertie et al. was excluded, it was noted that a mean difference of -1.48 (-2.55, -0.41) was computed, which was statistically significant (P < 0.007). However, all plots lie on the favourable side of the graph, but there was notably very high heterogeneity even among the subgroup analysis.*

[Abstract:2183]

# DUCHENNE MUSCULAR DYSTROPHY AND EUGLYCEMIC KETOACIDOSIS DUE TO FASTING: A CASE REPORT

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Fasting-induced ketoacidosis is particularly underdiagnosed in patients with neuromuscular pathology and severe muscle mass loss.

We describe a 17-year-old male with Duchenne muscular dystrophy, secondary severe sarcopenia, and nocturnal non-invasive mechanical ventilation (NIV) since the age of 12. One month before the current presentation, he was admitted to the intensive care unit (ICU) for acute respiratory infection and severe metabolic acidosis of unclear aetiology. The patient reported 3-days vomiting, diarrhoea, and fever (38°C). He was found to be drowsy, with signs of dehydration and hypotension (80/50 mmHg). Blood tests showed normal glucose, C-reactive protein (225 mg/dL), metabolic acidosis (pH of 7.03, bicarbonate of 5 mEq/L) and no elevation of serum lactate. The calculated anion-GAP was 32. Urinalysis revealed a marked presence of ketone bodies. Blood, urine, and stool cultures were negative. Ethanol, methanol and salicylate levels were negative. Blood ketone bodies were elevated (3.2 mmol/L).The diagnosis of euglycemic ketoacidosis secondary to fasting, inflammatory stress, fluids and bicarbonate loss was considered. There was a good response to intravenous dextrose with clinical improvement. The most typical causes of ketoacidosis in these patients include fasting and acute illness, loss of intestinal bicarbonate and inadequate ventilatory compensation. Hepatic compensation with hyperglycaemia depends on the entry of D-alanine into the glucose-alanine cycle for glucose production. In patients with neuromuscular pathology, a decreased amount of muscle D-alanine has been described. The deficiency of D-alanine could be a significant factor in the development of ketoacidosis. Adequate caloric intake is essential in the prevention and treatment of fasting ketoacidosis.

**Keywords:** *ketoacidosis, Duchenne, sarcopenia, D-alanine*

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[Abstract:2191]

## EFFECTIVE AND SAFE TREATMENT OF HYPERTHYROIDISM IN GRAVES' DISEASE

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Radioiodine therapy for Graves' disease has been widely introduced into clinical practice. However, there are conflicting considerations regarding the optimization of 131I dosage and the specifics of the potential complications of this treatment modality. The purpose of this study is to analyse the results of radioiodine therapy in Graves' disease according to the data of a separate endocrinological centre. A total of 73 patients (Female 50; Male 23; Aged 49,37±12,62 Mean±Std.Dev.) with Grave's disease from Endocrinology Centre were included in the present study. Administered therapeutic 131I doses was in average 15.22 ± 4.72 millicurie (mCi). It was found that a dose of 10.81±1.33 mCi is no less effective than an average dose of 19.53±1.83 mCi. After 131I administration, the rate of hypothyroidism was 89,06%, developing mainly in the first 6 month; Euthyroidism was established in 6,25% cases. 4,69% of patients, mainly with large goitre (47,33±22,30 ml), remained hyperthyroid. In cases of proper selection and effective preliminary preparation of patients with Grave's disease, cardiological and ophthalmological complications after 131I administration are quite rare.

*Keywords:* *Grave's disease, radioiodine therapy, hyperthyroidism*

[Abstract:2200]

## PREVALENCE AND CHARACTERISTICS OF ANAEMIA IN A DIABETES POPULATION OF SOUTH SPAIN

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**Summary:** Anaemia is a common complication of diabetes mellitus (DM) although its prevalence and characteristics are scarcely studied.

**Purpose:** To assess the prevalence and classification of anaemia in patients with DM older than 50y (P50 DM).

**Methods:** Ambulatory measurements (AM) containing complete blood count (CBC), HbA1c, Fasting Plasmatic Glycemia, and eGFR performed over 30 months in persons older than 50y were collected in a Health Area of Cádiz (Campo de Gibraltar). Combined Morphology Classification was done by MCV and MCHC.

**Findings:** There were 26,176 AMs out of 8,347 P50DMs, 51% male, median age 69y (IQR 61-77) and mean of 4.2 AMs/person. The prevalence was 29.4% (95CI 28.5 to 30.3%), predominantly normocytic (~80%), with an increase in microcytic in younger people (21%) and macrocytic in older one and in lower eGFR levels. Hypochromia was more common in women and decreased with age. An aetiological study has undergone in only 54% of micro-normocytic [iron deficiency, true (51.7%) or functional (16.8%)] and in 57% of macrocytic cases (28% have B12 hypovitaminosis). No relationship was found between anaemia and metabolic control, although it was present with prescribed drugs: it increased with insulin regimens (26.5% vs 41.2%; #), metformin was neutral (28.6% vs 29.8%) and decreased with glycosuric therapies (30.9% vs 23.5%; #).

**Conclusions:** In diabetic people older than 50y, 1) anaemia is very prevalent, 2) normocytic is the most frequent one, although macrocytosis increases with older age and lower GFR, and 3) different therapies exerts a positive (insulin) or negative (glycosuric) influence on its development.

*Keywords:* *diabetes mellitus, anaemia, prevalence, drug treatment*

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[Abstract:2218]

## EUGLYCEMIC KETOACIDOSIS ASSOCIATED WITH SGLT-2 INHIBITOR USE

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Hyperglycemia, metabolic acidosis, ketosis are diagnostic criteria for diabetic ketoacidosis. Diabetic ketoacidosis was encountered in a group of patients with blood glucose <250 mg/dL. This condition is called euglycemic diabetic ketoacidosis.

**Case Presentation:** A 66-year-old female underwent Endoscopic Ultrasonography due to complaints of malaise and jaundice for 1 month, exacerbation of her complaints for the last 1 week, and nausea and vomiting were added to her complaints. A 43*33 mm heterogeneous hypoechoic solid lesion in the neighbourhood of the head of pancreas is detected. Our patient's condition was moderate, consciousness was clear, coherent and oriented. Vital signs were blood pressure 140/70 mm/Hg, pulse 118 beats/min, body temperature 37.3°C, respiratory rate 32/min, saturation 94%. Blood gas pH: 7.25, $pCo_2$: 14 mmHg, $HCO_3$: 23 nmol/l, lactate: 1.9 nmol/l, glucose: 220 mg/dl, anion gap: 18 mmol/l and evaluated as metabolic acidosis with increased anion gap. The patient with known type 2 diabetes mellitus (10 years) was using empagliflozin 10 mg, sitagliptin and metformin. In the laboratory tests of our patient, complete urinalysis ketonuria (4+), protein (1+), glucose (-). The patient who started SGLT-2 inhibitor 1 week ago, had capillary glycemia of 225 mg/dl, metabolic acidosis and ketonuria was evaluated as euglycemic DKA. After appropriate DKA treatment, the patient's acidosis improved and ketonuria decreased within 24 hours and the liver tru-cut biopsy result was compatible with pancreatic adenocarcinoma and the patient was transferred to the medical oncology.

**Conclusions:** Euglycemic DKA is one of the rare side effects of SGLT-2 inhibitors and can be a significant cause of mortality if awareness is low.

***Keywords:*** *Type 2 DM, SGLT-2 inhibitors, euglycemic ketoacidosis*

[Abstract:2239]

## THE ABDOMINAL PAIN HIDING BEHIND DIABETIC KETOACIDOSIS, A CASE REPORT

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Diabetic ketoacidosis (DKA) might be presenting symptom of new-onset diabetes. Patients may exhibit abdominal pain, dehydration, coma, and various neurological findings (1). Pertaining the patient's abdominal pain to DKA without investigating the underlying pathologies might cause overlooking potentially mortal clinical conditions.

In this report, we share our case presenting with DKA diagnosed with acute pancreatitis (AP).37-year-old male patient, history of gout and facial paralysis, presented with fatigue, abdominal pain, increased thirst. Patient was using methylprednisolone for facial paralysis.

On examination he was tachycardic (110 beats/min), appeared lethargic, dehydrated and mild tenderness in the epigastric area.

In the laboratory tests, glucose 271 mg/dL, hemoglobin-A1c 16.0%, pH in venous blood gas was resulted 7.30, $HCO_3$ 15.6.

The patient, whose urine analysis showed dipstick glucose and ketone (+++) positive, was diagnosed with diabetic ketoacidosis and admitted to the internal medicine ward. Within the metabolic work-up, the patient's serum triglyceride 2184 mg/dL, amylase-P (pancreatic amylase) 223 U/L and lipase 674U/L. Hypertriglyceridemia is the third most common cause of AP, should be considered abdominal pain accompanying triglyceride levels above 1000 mg/dL (2).

In our case, the use of glucocorticoids increased the tendency for hyperglycaemia by disrupting diabetes regulation and resulted acute pancreatitis secondary to hypertriglyceridemia. It should always be kept in mind that stressor processes such as AP, acute cerebrovascular, and coronary ischemic events, might be triggers behind DKA.

References

1-Malone ML, Gennis V, Goodwin JS. Characteristics of diabetic ketoacidosis in older versus younger adults.J Am Geriatr Soc.1992 Nov;40(11):1100-4.doi:10.1111/j.1532-5415.1992.tb01797.x.PMID:1401693.

2- Yang AL, McNabb-Baltar J. Hypertriglyceridemia and acute pancreatitis.Pancreatology.2020 Jul;20(5):795-800.doi:10.1016/j.pan.2020.06.005.Epub 2020Jun 12.PMID: 32571534.

***Keywords:*** *diabetic ketoacidosis, acute pancreatitis, hypertriglyceridemia*

[Abstract:2284]

## HYPERCALCEMIA – NOT ALWAYS WHAT IT SEEMS LIKE

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**Introduction:** Hypercalcemia affects around 1% of worldwide population. Hyperparathyroidism and malignancy are the most common causes and the diagnostic approach involves distinguishing between them. There's a higher incidence of cancer in patients with primary hyperparathyroidism and of primary hyperparathyroidism in patients with cancer. Thus, serum parathyroid hormone (PTH) should be measured in hypercalcaemic patients with cancer.

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**Case Presentation:** 70 year-old female patient with medical history of gastric adenocarcinoma, submitted to subtotal gastrectomy and undergoing adjuvant chemotherapy with FOLFOX, and osteoporosis. She was referred to the emergency department due to mild hypercalcemia of 12 mg/dl (ionized 1.67 mmol/L) and fatigue, for which she was admitted to the Internal Medicine ward, submitted to a volume expanding strategy with saline and treated with intravenous diuretic and zoledronic acid. Our study revealed increased levels of PTH (36.7 pmol/L), calcium and calcium excretion; decreased levels of phosphate and vitamin D; normal levels PTH-related peptide. Thyroid and renal ultrasounds showed no signs of relevant disease. However, a radionuclide parathyroid imaging revealed hyperfunctioning right parathyroid gland, suggestive of adenoma. When discharged her calcium levels had improved (10.5 mg/dl) and she was referred to Endocrinology and Surgery, with the indication for right parathyroidectomy as definitive treatment.

**Conclusions:** When approaching a patient with hypercalcemia, it's essential to distinguish between the two most important causes: primary hyperparathyroidism and malignancy. Serum PTH is the most valuable initial test, as it will distinguish PTH-dependent from PTH-independent causes. It is of utmost importance to determine the cause of hypercalcemia to ensure proper management and treatment.

*Keywords:* *hypercalcemia, PTH, primary hyperparathyroidism, malignancy*

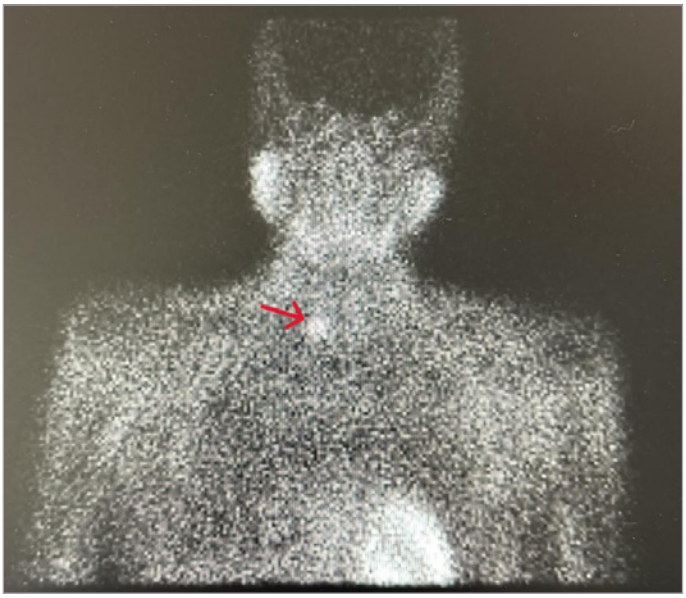

***Figure 1.*** *Hyperfunctioning right parathyroid gland, suggestive of adenoma.*

[Abstract:2328]

## WEIGHT LOSS MAINTENANCE CAN BE ACHIEVED IN THE ELDERLY TOO: A CASE FROM OBESITY CENTER

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**Introduction:** In the geriatric population, combating obesity is of great importance for eliminating daily activity limitations and functional impairments. Here, we want to highlight that success in obesity treatment can be achieved in the geriatric age group by presenting a patient from this age group with a successful outcome.

**Case Presentation:** 67-year-old male patient applied to our obesity centre in 2019 with 39 kg/m$^2$ BMI (92 kg, 158 cm).He did not have any disease history. After routine evaluation he was diagnosed with prediabetes, hypertension and hyperlipidemia. Lab: urea: 29 mg/dl, creatinine: 0,85 mg/dl, total cholesterol: 252 mg/dl, triglyceride: 214 mg/dl, LDL: 164 mg/dl, HDL: 45 mg/dl, FBG: 99 mg/dl, 2$^{nd}$ hour SPG:148 mg/dl, HbA1c: 6.1. Metformin and enalapril + lercanidipin, medical nutritional therapy and exercise was prescribed. No anti-obesity drug was initiated. He was followed-up monthly. He showed great compliance with diet/exercise instructions, and he lost 18 kg (74 kg) in one year. Obesity centre was closed during the COVID-19 pandemic. He started his follow-ups afterwards and he weighed 72 kg (-20 kg totally). Present lab: FBG:102 mg/dl, HbA1c: 5.7, total cholesterol: 225 mg/dl, triglyceride: 150 mg/dl, LDL: 146 mg/dl, HDL: 49 mg/dl. His most recent BMI is 29 kg/m$^2$ and he is still being followed.

**Conclusions:** In the elderly patient group, conditions such as accompanying diseases, multiple drug use and decreased functional capacity can make obesity treatment challenging. Despite these challenges, success can be achieved with a multidisciplinary team and cooperative and willing patients. Due to obesity paradox, it may be sufficient to initially reduce the BMI to below 30 kg/m$^2$. It is crucial not to overlook the geriatric patient group in the follow-up and treatment of obesity to contribute to public health.

*Keywords:* *obesity, geriatric patient group, obesity treatment, weight maintenance*

[Abstract:2373]

## SIADH: ALWAYS GO FURTHER

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This is about a 69-year-old patient who came to the Emergency Department with a one-week history of dyspepsia, heartburn and odynophagia that evoked a gastroesophageal reflux disease, without any neurological symptoms. Personal history included

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hypercholesterolemia, type 1 diabetes mellitus, G2A2 chronic kidney disease attributed to diabetes and an unclassified familiar mild haemolytic anaemia.The blood work revealed a plasma sodium level of 124 mEq/L, whereas a study four days earlier showed 134 mEq/L. Once admitted to our department for the study of hyponatremia, normality was confirmed in regard to the rest of the ions in plasm, as well as renal function, glucose, complete blood count and liver function tests, showing only a slight elevation in acute phase reactants. Clinically, the patient did not have oedema, ascites or pulmonary congestion indicating increased extracellular volume. Therefore, it was a normovolemic and asymptomatic hypoosmolar hyponatremia.Urinary sodium was 78, urinary osmolality 402 mOsm/kg and plasma osmolality was 257 mOsm/kg. These findings suggested a syndrome of inappropriate antidiuretic hormone secretion. Restriction of water intake and a salty diet were established, resulting in progressive improvement of plasma sodium until normalization. Concurrently and based on the limited literature available, we studied digestive causes that could trigger the syndrome. We conducted endoscopic studies with biopsy sampling, which revealed the presence of a diffuse gastric adenocarcinoma with signet ring cells. After gastrectomy, the patient has consistently normalized plasma sodium levels in all analyses.

*Keywords:* *hyponatremia, SIADH, gastric adenocarcinoma, signet ring cells.*

[Abstract:2378]

## ASSOCIATION OF VITAMIN D LEVELS WITH OBESITY

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**Objective:** The aim of this study was to evaluate the relationship between vitamin D levels and insulin body mass index in patients with BMI over 25.

**Methods:**The medical records of patients over 18 years of age who applied to the Internal Medicine Outpatient Clinic were retrospectively analysed. 259 adult patients were included in the study. BMI above 25 was taken as obesity. Known chronic diseases were excluded. According to serum 25 (OH) vitamin D levels; 25 (OH) vitamin D concentration <30 nmol/L was classified as deficiency, 30-50 nmol/L (12-20 ng/ml) as insufficiency and >50 nmol/L as sufficiency.

**Results:** In the study, file data of a total of 259 patients, 125 (48.2%) males and 134 (51.7%) females, were obtained. There was no significant difference in terms of gender. The mean age of the patients was 44.3±4.25 years (69-21 years), the mean serum 25 (OH) vitamin D level was 12.84±5.03 ng/ml, and vitamin D deficiency was more common in girls (65.2%) than in boys (48.9%) (p=0.001). Vitamin D deficiency was more frequent in obese than in non-obese group (p=0.001)

**Conclusions:** In conclusion, low serum 25 (OH) vitamin D levels are common in adults with obesity. Significantly low vitamin D levels were found in obese patients. It is known that vitamin D has effects such as hepatosteatosis and insulin resistance and has a protective effect against these conditions. Low vitamin D levels in obese individuals may further increase insulin resistance and accelerate the development of diseases such as metabolic syndrome, type 2 diabetes mellitus and cardiovascular disease.

*Keywords:* *obesity, hepatosteatosis, vitamin D*

| Results | Obese N=127 | Non-Obese N=132 | Total N=259 |
|---|---|---|---|
| Deficiency | 100 (78.7) | 68 (51.5) | 168 (64.9) |
| Inadequate | 25 (19.7 | 55 (41.7) | 80 (30.9) |
| Adequate | 2 (1.6) | 9 (6.8) | 11 (4.2) |

***Table 1.*** *Results.*

*Association with d vitamin levels in obese and non-obese patients*

**Student T Test $x^2$=21.711 P=0,001 statistically significant difference.*

[Abstract:2409]

## THE EFFECT OF BREATHING EXERCISES ON ANXIETY LEVELS DURING THE FIRST INSULIN INJECTION IN PATIENTS WITH TYPE 2 DIABETES

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**Aim:** This study aimed to assess the impact of breathing exercises on anxiety levels during the initial insulin injection in patients with Type 2 diabetes.

**Methods:** This randomized, controlled experimental research was carried out at a diabetes outpatient clinic of a Training and Research Hospital in Istanbul from March 2023 to September 2023. The patients were assigned to the experimental group (n: 38) and the control group (n: 37) using a computer-based randomization algorithm (Table 1). The experimental group received a breathing exercise intervention before their insulin injection, while the control group received standard care without additional interventions. Data were collected using a personal information form developed by the researcher in accordance with the literature, as well as the State-Trait Anxiety Inventory I and II, and Subjective Units of Distress Scale used as pre- and post-tests.

**Results:** There were no initial differences between the two groups, but a notable reduction in the mean scores of STAI-I ($p < 0.001$), STAI-II ($p < 0.001$) and SUDS ($p < 0.001$) was observed before and

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after the injection in the group that practiced breathing exercises (z=19.13, z=5.25 and z=15,96, respectively, all have p<0.001) (Tables 2, 3). No statistically significant difference was observed in the control group (p=0.324, p=0.169 and p=0.698, respectively).

**Conclusions:** Breathing exercise was found to be an effective method for reducing anxiety and subjective discomfort in patients with type 2 diabetes when initiating insulin treatment.

*Keywords: breathing exercise, insulin injection, type 2 diabetes*

| Variables | | Groups | | Test Value |
|---|---|---|---|---|
| | | Breath exercise (n=38) | Control (n=37) | p |
| Age | Mean±SD | 59.12±10.53 (18-89) | 56.89±10.25 (21-80) | F:21.18 [a]0,103 |
| | | n (%) | n (%) | |
| Gender | Female | 20 (52.7) | 21 (56.8) | $\chi^2$:0,212 [b]0,615 |
| | Male | 18 (47.4) | 16 (43.3) | |
| Marital Status | Married | 31 (81.6) | 29 (78.4) | $\chi^2$:0,052 [b]0,812 |
| | Single | 7 (18.5) | 8 (21.7) | |
| Education | Primary | 12 (31.6) | 14 (37.9) | $\chi^2$:2.252 [d]0,785 |
| | Junior High | 5(13.2) | 3 (8.1) | |
| | Senior High | 11 (29.0) | 11(29.8) | |
| | University | 10 (26.4) | 9 (24.4) | |
| Occupation | Retired/not working | 16 (42.1) | 17 (46) | $\chi^2$:14.136 [d]0,274 |
| | Officer/worker | 9 (23.7) | 8 (21.7) | |
| | Freelancer | 13 (34.3) | 13 (35.2) | |
| HbA1c(%) | Mean±SD | 8.16±1.86 (6-12) | 8.56±1.58 (6-11) | F:0.652 [a]0,502 |

*Table 1. Sociodemographic characteristics of the participants in the breathing exercise and control groups*

| Groups / Scale | | Breathing Group (n= 33) Mean± SD | Control Group (n= 35) Mean± SD | Test U** p | %95 CI Lower-Upper |
|---|---|---|---|---|---|
| STAI-1 | Before | 67.68±9.05 44-80 | 64.7±8.05 45-80 | .366 .144 | -1.039 7.00 |
| | After | 32.25±4.67 25-39 | 64.43±7.68 45-80 | 4.633 **.000*** | -35.185 -29.165 |
| Z* | p | 19.13 **.000*** | 1.00 .324 | | |
| STAI-2 | Before | 36.62±0.76 2-5 | 33.56±0.62 2-5 | .055 .724 | -.292 .433 |
| | After | 42.48±1.06 1-4 | 33.43±0.66 2-5 | 6,863 **.000*** | -1.261 - .561 |
| Z* | p | 5.25 **.000*** | 1.405 .169 | | |

Note. *: Wilcoxon Signed Rank Test, **: Mann- Whitney U test, n: Number of the participant
SD: Standart Deviation, *p < .001. CL : Confidence Interval of the Difference

*Table 2. Comparison of State-Trait Anxiety Inventory I and II pre- and post-injection scores between the groups.*

| Groups / Scale | | Breathing Group (n= 33) Mean± SD (min-max) | Control Group (n= 35) Mean± SD (min-max) | Test U** p | %95 CI Lower-Upper |
|---|---|---|---|---|---|
| The subjective units of distress Scale (SUD) | Before | 7.56±1.09 5-10 | 7.49±1.36 4-10 | 0.052 .276 | -3.154 3.395 |
| | After | 3.06±0.96 1-6 | 7.35±1.35 4-9 | 1,896 **.000*** | -5,198 -3,958 |
| Z* | p | 15.96 **.000*** | .269 .698 | | |

Note. *: Wilcoxon Signed Rank Test, **: Mann- Whitney U test, n: Number of the participant SD: Standart Deviation, *p < .001. CL : Confidence Interval of the Difference

*Table 3. Comparison of the Subjective Units of Distress Scale ( SUD) pre- and post-injection scores between the groups.*

[Abstract:2441]

## OPTIMISING THYROID HEALTH: A COMPREHENSIVE INSIGHT INTO LEVOTHYROXINE ADMINISTRATION IN A UNIVERSITY TEACHING HOSPITAL

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**Background and Aims:** Levothyroxine is commonly used in the treatment of patients with hypothyroidism, with a majority needing a life-long replacement, which makes its effective administration of paramount importance. This study scrutinized prescription patterns, guidelines adherence, and patient outcomes in a university hospital.

**Methods:** This was a two-month retrospective study of all inpatients with a diagnosis of hypothyroidism who were on Levothyroxine replacement, from August to October 2022. Data was obtained from medical notes, medication charts, and laboratory databases. Data was analysed using Excel.

**Results:** Fifty patients were included. Mean (SD) age was 73 (±17) years. Twenty-four patients were given levothyroxine within 30 minutes of meals in comparison with forty-nine patients in the pre-intervention study. In 44% were commenced with other medications, compared to 90% in the initial study. Seventeen patients received levothyroxine less than two-hours of administrating antacids, calcium, and iron-containing preparations which were Seventy-six percent of patients initially.

The comparison of correct administration of levothyroxine between the wards in terms of giving levothyroxine at least 30 to 60 minutes before breakfast or 3 to 4 hours after dinner, and after 4 hours of medications affecting its absorption has shown a statistically significant difference (P1=0.0005 and P2=0.036, respectively). Thyroid biochemical status was checked within six weeks in 96% of patients 22% were under-replaced, and 2% were over-replaced. Among under-replaced patients, 55% of Levothyroxine doses ranged between 75 mcg and 200 mcg.

**Conclusions:** This study emphasized the need for targeted

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interventions to standardize practices, and regular monitoring to ensure optimal thyroid management.

*Keywords:* *thyroid hormone replacement, administration accuracy, patient outcomes*

[Abstract:2443]

## URIC ACID/HDL RATIO IN HASHIMOTO'S DISEASE

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**Introduction and Objectives:** Hashimoto's thyroiditis (HT) is an inflammatory disease characterized by lymphocytic and fibroblastic infiltration of the thyroid gland. Uric acid/HDL ratio has been shown to be increased in many inflammatory conditions such as diabetes mellitus, hepatosteatosis and hypertension. In our study, we aimed to compare Uric acid/HDL ratio and other laboratory parameters in Hashimoto's patients with healthy controls and we thought that Uric acid/HDL ratio may be associated with Hashimoto's thyroiditis.

**Methods:** Fifty-three patients with a medical history, physical examination and a previous diagnosis of Hashimoto's disease and 55 healthy volunteers without systemic disease who were admitted to the internal medicine outpatient clinic of Ankara Bilkent City Hospital were included in the study.

**Results:** A total of 108 women, including 53 HT patients and 55 control patients, were included in the study. The mean age was 33.23±10.33 years in the patient group and 34.33±8.86 years in the control group. There was no significant difference between the groups in terms of age (p=0.61). Table 1 shows the general characteristics and laboratory data of the patients.

**Conclusions:** Uric acid/HDL values were statistically significantly higher in the Hashimoto's group compared to the control group, while HDL and hemogram values were lower. The mean Uric acid/HDL ratio of the HT group was 9±3.2%, while the mean Uric acid/HDL ratio of the control group was 8.5±2.8% (p=0.018). Uric Acid/HDL Ratio in Hashimoto's Disease may be valuable in the diagnosis of Hashimoto's disease by showing inflammation.

*Keywords:* *Hashimoto, inflammation, thyroiditis*

| Results | Control Group | Hashimoto Group | P |
|---|---|---|---|
| Neutrophil ($X10^9$/L) | 3.58(2.2-7.1) | 4.73(2.34-8.9) | <0.001** |
| Leukocyte ($X10^9$/L) | 6.77(5.64-10.39) | 7.97(4-14.9) | 0.026** |
| Uric Acid/Hdl | 8.5±2.8 | 9±3.2 | 0.018* |
| CRP (Mg/L) | 0.6(0.13-16) | 1.22(0.2-21.73) | 0.449** |
| TSH (Mu/L) | 1.53(0.17-4.45) | 2.72(0.01-24.62) | 0.002** |
| Anti TPO (IU/Ml) | 0.2(0.01-44.39) | 339.3(10.26-2283.3) | <0.001** |
| Anti TG (IU/Ml) | 1.18(0.36-3.23) | 40.8(1.01-9648.6) | <0.001** |
| Uric acid (Mg/Dl) | 4.2±0.91 | 4.31±1.00 | 0.52* |
| HDL (Mg/Dl) | 51.74±11.00 | 45.70±9.46 | 0.002* |

***Table 1.*** *Results.*
*Uric Acid/HDL Ratio in Hashimoto's Disease *Student T Test **Mann-Whitney U Test P<0.05 statistically significant difference.*

[Abstract:2497]

## AN INCIDENTAL FINDING OF RETROPERITONEAL PARAGANGLIOMA: A CASE REPORT

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Paragangliomas are rare neuroendocrine tumours that arise from the extra-adrenal autonomic paraganglia, small organs consisting mainly of neuroendocrine cells derived from the embryonic neural crest and having the ability to secrete catecholamines. Clinical suspicion, biochemical testing, imaging, and histological confirmation contribute to the diagnosis. We report a case of a 53-year-old male patient who presented with nausea, vomiting, and abdominal pain and was found to have a large retroperitoneal solid mass upon imaging. The patient was referred from another clinic, and a diagnostic biopsy was attempted there. During the procedure, the patient experienced palpitations, sweating, and increased blood pressure, so the procedure was discontinued. The patient, who was found to have an abdominal mass and had a hypertensive crisis during the biopsy, was referred to an endocrinologist with high clinical suspicion of a neuroendocrine tumor. On physical examination, blood pressure and heart rate were normally observed. An abdominal computed tomography (CT) with contrast was ordered, which showed the presence of a left retroperitoneal mass. Retroperitoneal paraganglioma was then suspected, and a particular blood analysis for catecholamines was performed. The patient, whose catecholamine levels were found to be significantly high, was directed for surgery after preparation.

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The surgery was performed by the initiation of treatment preoperatively with IV fluid and α-blockers (phenoxybenzamine). Upon histological examination It was identified as a paraganglioma. This case serves as a reminder that if associated symptoms and diagnostic results are congruent, paragangliomas should never be ruled out as a differential diagnosis.

*Keywords:* *retroperitoneal tumour, catecholamines, paraganglioma*

[Abstract:2535]

## ASSOCIATION OF SERUM SCLEROSTIN AND ADVANCED GLYCATION END PRODUCTS WITH BONE MINERAL DENSITY IN DIABETES MELLITUS PATIENTS

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**Aim:** The aim was to evaluate the association of serum sclerostin and advanced glycation end products (AGE) with bone mineral density and vertebra fractures in diabetes mellitus patients.

**Methods:** This cross-sectional study included 76 patients with type 1 DM, 91 patients with type 2 DM, 40 patients with LADA. Nondiabetic participants (n = 85) were used as controls. Serum sclerostin, well-characterized AGEs carboxymethyllysine and pentosidine were analysed. DEXA scan and vertebra radiography were evaluated.

**Results:** AGE and sclerostin levels were found significantly higher in all diabetic groups compared to the control group. Osteoporosis was detected in 10.5% of type 1 DM patients, 5.49% in type 2 DM, and 10% in LADA. Vertebra fracture was detected in 53.9% of type 1 DM patients, type 2 DM in 58.2%, and LADA in 72.5%. Serum carboxymethyllysine levels were found significantly higher in type 2 DM patients with vertebral fractures compared to those without fractures.

**Conclusions:** The frequency of vertebral fractures is increased in diabetic patients. Serum AGE levels were found high in diabetic patients and were associated with vertebral fractures, especially in the type 2 DM patients. Vertebral fractures were detected in patients without a diagnosis of osteoporosis. This suggests that other methods can be developed for bone assessment in patients with diabetes mellitus.

*Keywords:* *diabetes mellitus, AGE, sclerostin, bone, vertebra fracture*

[Abstract:2566]

## HYPOKALAEMIC PERIODIC PARALYSIS: A CASE REPORT

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A 51-year-old male patient with a history of low-grade urothelial neoplasia presented to the emergency department with progressive weakness in his left lower limb which, days later, progressed to both upper limbs, with no sensory deficits or sphincteric incontinence. The patient admitted to have consumed large amounts of food and alcohol and had similar symptoms once or twice a year in the past. Blood tests revealed severe hypopotassaemia, low potassium levels in urine, elevated CPK, and hypomagnesaemia. A lumbar puncture was performed to rule out Guillain-Barré syndrome.

Once on the internal medicine ward, a cranial CT scan and cervical MRI ruled out acute spinal pathology that could justify this condition. During his hospital stay, after normalisation of the kalaemia and magnesaemia with intravenous treatment, the patient showed a favourable clinical evolution with almost complete motor recovery of the extremities, being able to stand and walk.

Following this improvement, the patient was transferred to his reference hospital where the study was continued to confirm the clinical suspicion: hypokalaemic periodic paralysis. The patient is currently awaiting genetic study.Hypokalaemic periodic paralysis is a rare muscle disorder characterized by episodes of paralysis or muscle weakness caused by low blood potassium levels. The condition is inherited in an autosomal dominant pattern, though other diseases such as thyrotoxicosis, renal tubular acidosis, diabetes insipidus and celiac disease, have also been linked to this condition. Treatment typically involves potassium supplementation and avoiding triggers such as high-carbohydrate meals, excessive salt intake, and strenuous exercise.

*Keywords:* *potassium, paralysis, periodic, genetics*

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[Abstract:2577]

## PREVALENCE OF IRON DEFICIENCY AND ITS RELATIONSHIP WITH VITAMIN D STATUS (CASE OF THE BLIDA REGION - ALGERIA)

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**Introduction:** Iron deficiency and vitamin D hypovitaminosis are two global public health issues.

**Methods:** To determine the prevalence of iron deficiency and study its relationship with the vitamin D status of individuals, we conducted a descriptive, cross-sectional, prospective, and multicentre epidemiological survey on 83 subjects from the Blida province in Algeria. Assessment of iron status (ferritin, haemoglobin, MCV) and measurement of 25-hydroxy-vitamin D were performed. The study also included a questionnaire to identify risk factors.

**Results:** Our population comprised 70 women (84.36%) and 13 men (15.66%), with a significant female predominance (P = 0.000). The mean age was 37.45 ± 11.50 years, and the majority of included subjects (69 patients) had a normal body mass index. Iron deficiency affected 27.71% of the subjects, and anaemia was present in 36.1% of the studied population. The prevalence of vitamin D hypovitaminosis was 93.97%. A highly significant positive correlation was found between 25(OH)D and ferritin (R = 0.82; P = 0.000). Similarly, a positive correlation was observed between calcidiol and haemoglobin (R = 0.74; p < 0.05). However, no significant correlation was noted between MCV and serum levels of 25(OH)D (R = 0.39; P > 0.05).

**Conclusions:** Despite current nutritional recommendations, iron deficiency and vitamin D hypovitaminosis remain a public health problem, especially in Algeria where data are scarce for evaluating and treating these deficiencies comprehensively. The diagnosis and treatment of iron deficiencies should consider the vitamin D status of individuals.

*Keywords:* *iron deficiency, vitamin D, hypovitaminosis*

[Abstract:2664]

## HYPERPHOSPHATEMIA-ASSOCIATED TUMORAL CALCINOSIS

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[1] ⚠ The author did not provide affiliations upon requests from the event organizer

Tumoral calcinosis (TC) is a rare disorder characterized by extensive, calcified, painful soft tissue masses surrounding large joints, particularly in young adults. It is often associated with repetitive trauma or prolonged periarticular pressure, commonly observed in the hips, shoulders, elbows. It can be sporadically or have a familial predisposition. Familial hypophosphatemic tumoral calcinosis, possibly linked to a relative deficiency or resistance to FGF-23, a crucial player in phosphorus metabolism. A 38-year-old male with no known chronic illnesses was referred from the nephrology department to our clinic due to hyperphosphatemia. The patient had four siblings, and there was a history of third-degree consanguinity among the parents. The patient underwent 14 surgeries for various soft tissue lesions, all painful and progressive. The initial operation, performed at the age of 11 on the right knee, resulted in a pathology report diagnosing tumoral calcinosis. During the physical examination, the patient's vital signs were within normal ranges, and laboratory tests revealed hyperphosphatemia. Bone mineral density measurements indicated abnormalities, and a bone survey identified calcifications and deformities. Genetic analysis revealed a *GALNT3* mutation. The patient was advised to avoid trauma and adhere to a low-phosphorus diet. Vitamin D replacement therapy and phosphorus-binding treatment (calcium acetate 700 mg 3x2) were initiated with meals. Sevelamer 800 mg 3x3 was added when the target phosphorus level couldn't be achieved, resulting in a decrease in serum phosphorus. Genetic consultation and an eye examination were recommended. In individuals undergoing recurrent soft tissue surgeries, especially with concomitant hyperphosphatemia, tumoral calcinosis should be considered. In our case, phosphorus-lowering treatment was initiated at the age of 38, and the genetic diagnosis delayed until this age.

*Keywords:* *tumoral calcinosis, hyperphosphatemia, GALNT3*

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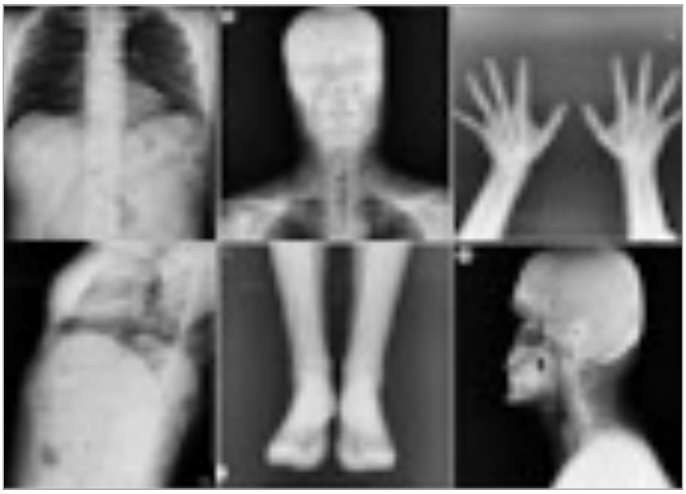

*Figure 1.*

[Abstract:2670]

## DIABETES INSIPIDUS

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**Introduction:** Diabetes insipidus (DI) is a syndrome characterised by polyuria which is almost always associated with polydipsia. The most frequent cause is central DI, which is the result of an inadequate secretion of the diuretic hormone, and diagnosis involves differentiating it from other causes of polyuria and polydipsia.

**Case Presentation:** The patient, who had no complaints before, has complaints of drinking too much water and polyuria, which have been increasing for the last 3 weeks. The patient has no head trauma. Further examinations were performed for what was thought to be psychogenic polydipsia.

**Conclusions:** A clinical study, which included the water restriction test and concentration tests with desmopressin, enabled us to diagnose central DI. Pituitary MRI: The pituitary gland is diffusely enlarged, and the stalk is thick. T1 brightness of the neurohypophysis has disappeared. She is asymptomatic under treatment with intranasal desmopressin.

**Keywords:** *diabetes insipidus, desmopressin, pituitary*

[Abstract:2672]

## FACTORS ASSOCIATED WITH THE OPTIMIZATION OF PHARMACOLOGICAL TREATMENT OF TYPE 2 DIABETES MELLITUS IN PATIENTS ADMITTED TO AN INTERNAL MEDICINE SERVICE: ANALYSIS OF 12-MONTH MORTALITY

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The aim was to assess the optimization of pharmacological treatment for type 2 diabetes during hospitalization and its impact on cardiovascular morbidity and mortality at 12 months. A retrospective observational study included 210 patients admitted to a tertiary hospital's Internal Medicine Department from February to March 2022. Treatment optimization was based on 2022 Spanish Society of Internal Medicine guidelines.60.5% of patients were optimized at discharge. Factors associated with optimization included chronic kidney disease stage IV-V (OR 3.4; p 0.014) and heart failure (OR 2.3; p 0.015). Subgroup analysis for patients under 80 years revealed frailty (OR 0.2; p 0.021), obesity (OR 0.2; p 0.047), and heart failure (OR 3.5; p 0.043) as associated variables. Poor metabolic control (HbA1c >7.5%) was not a significant factor. Median follow-up was 8 months, with a 43.3% one-year mortality rate. Optimized patients had a higher mortality rate (75.4% vs. 49.4%; p 0.03), and 19.8% died from major adverse cardiac events. Factors associated with higher mortality included advanced chronic kidney disease (HR 2.5; p 0.001) and optimization of treatment (HR 2.03; p 0.015).In conclusion, treatment optimization for type 2 diabetes during hospitalization is common, particularly in patients with chronic kidney disease and heart failure. Despite optimization, the 12-month mortality rate remains high, with advanced chronic kidney disease and treatment optimization identified as factors associated with increased mortality. The study suggests that optimizing hypoglycaemic treatment alone may not effectively improve the prognosis of these patients.

**Keywords:** *diabetes mellitus, treatment, mortality*

 **DOI:** 10.12890/2024_V11Sup1

| Characteristics | Absolute value (%) | High cardiovascular risk |
|---|---|---|
| Over 75 years old | 120 (78.9%) | 108 (90%) |
| Frailty | 98 (64.5%) | 87 (90%) |
| Women | 74 (48.7%) | 69 (93%) |
| Hypertension | 140 (92.1%) | 129 (92%) |
| Dyslipidemia | 118 (77.6%) | 111 (95%) |
| Obesity | 51 (53.1%) | 47 (92%) |
| Heart failure | 64 (42.1%) | 62 (97%) |
| Advanced chronic kidney disease (stage IV/V) | 27 (17.8%) | 25 (93%) |
| Optimized | 92 (60.5%) | 79 (87%) |
| Total | 152 | 136 (90.1%) |

***Table 1.*** *Characteristics of patients included in the study.*

[Abstract:2687]

## ASSOCIATION BETWEEN SERUM 25-HYDROXYVITAMIN D, MICROVASCULAR COMPLICATIONS, AND CRP LEVEL IN PATIENTS WITH T2DM

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Type 2 diabetes mellitus and vitamin D deficiency are globally prevalent. Vitamin D, with its pleiotropic activities, has gained attention as a potential modifier for diabetes and its complications. This cross-sectional study explored associations between vitamin D levels, microvascular complications of type 2 diabetes, and CRP levels. Seventy-eight participants, including 26 healthy controls (Control), 26 diabetes patients (DM), and 26 diabetic patients with microvascular complications (DM/Comp), were enrolled. Clinical and laboratory investigations for neuropathy, retinopathy, and nephropathy were conducted, measuring 25-hydroxyvitamin D and CRP levels. Demographic characteristics (age and gender) were comparable among the Control, DM, and DM/Comp groups. Vitamin D levels were lower in DM/Comp (35.3 ± 17.9 µg/L) compared to Control (40.6 ± 27.7 µg/L) and DM (41.5 ± 23.4 µg/L). Additionally, a negative correlation was noted between the number of microvascular complications and vitamin D levels. CRP levels were highest in DM/Comp (3.4 ± 4.0 mg/L), with DM showing higher values than Control (2.9 ± 3.4 mg/L and 2.0 ± 1.6 mg/L, respectively). An essential finding was a positive correlation between CRP values and both BMI (r = 0.42, p = 0.000) and abdominal girth (r = 0.40, p = 0.000). In conclusion, vitamin D levels decrease in diabetic patients with microvascular complications, with a further decline as complications increase. Rigorous studies are crucial to establish a causal link between vitamin D deficiency and diabetic microvascular complications.

***Keywords:*** *CRP, diabetes mellitus, microvascular complications, vitamin D*

| | Control (N=26) | DM (N=26) | DM/Comp (N=26) | *p* |
|---|---|---|---|---|
| Gender (M/F) | 14/12 | 15/11 | 13/13 | 0.857 |
| Age (years)* | 54.5 ± 6.9 | 54.9 ± 7.2 | 56.0 ± 6.5 | 0.741 |
| Body mass index (kg/m²)* | 29.1 ± 2.5 | 29.0 ± 3.9 | 31.5 ± 5.3 | 0.044** |
| Waist circumference (cm)* | 99.1 ± 8.7 | 101.9 ± 10.7 | 107.9 ± 9.8 | 0.006** |

* Values are given as mean ± standard deviation.
** $p < 0.05$

***Table 1.*** *Essential demographics and anthropometric measurements of the study groups.*

| | Control (N=26) | DM/Comp 1 complication (N=16) | DM/Comp 2-3 complications (N=10) |
|---|---|---|---|
| Vitamin D (µg/L) | | | |
| Control (40.6 ± 27.7)** | - | 0.940 | 0.083*** |
| DM/Comp 1 complication (40.1 ± 18.4)** | 0.940 | - | 0.074*** |
| DM/Comp 2-3 complications (27.7 ± 14.9)** | 0.083*** | 0.074*** | - |

* The *p* values given in the table are for pairwise comparisons.
** Values are given as mean ± standard deviation.
*** *p* is between 0.05-0.10.

***Table 2.*** *The results of the pairwise comparisons between the Control, DM/Comp 1 complication, and DM/Comp 2-3 complications groups.*

| | Control | DM | DM/Comp | *p* |
|---|---|---|---|---|
| Vitamin D (µg/L)* | 40.6 ± 27.7 | 41.5 ± 23.4 | 35.3 ± 17.9 | 0.820 |
| CRP (mg/L)* | 2.0 ± 1.6 | 2.9 ± 3.4 | 3.4 ± 4.0 | 0.662 |

* Values are given as mean ± standard deviation.

***Table 3.*** *Vitamin D and CRP levels of the study groups.*

[Abstract:2705]

## MORTALITY IN PATIENTS DIAGNOSED WITH TYPE 2 DIABETES WHO APPLIED TO THE OUTPATIENT CLINIC

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We aim to investigate the factors influencing the two-year mortality of patients diagnosed with type 2 diabetes who present to the outpatient clinic, with a particular focus on the relationship between HbA1c levels and mortality.

Mortality remains a significant concern for individuals with type 2 diabetes. Understanding the impact of c parameters, especially HbA1c, on mortality can provide insights into therapeutic strategies and patient care.

In 2019, 603 patients who diagnosed with type 2 diabetes who presented to the internal medicine outpatient clinic were included in the study. Data from their initial hospital visits were recorded. Mortality data within two years of these patients were collected to investigate factors influencing mortality at the first hospital admission.

The median age of survivors was 57 years compared to 67 years for non-survivors (p<0.001). Of the survivors, 444 (79.9%) were

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male, while 47 (89%) of the non-survivors were male. Mortality decreased as albumin and GFR levels increased. Patients with HbA1c levels above 7% had a significantly higher mortality risk (OR: 2.151, 95% C.I.: 1.086-4.258).

The results highlight the crucial role of glycaemic control in managing type 2 diabetes. The increased mortality risk associated with elevated HbA1c levels underscores its importance as a prognostic indicator. Observations related to age further emphasize the necessity for individualized care interventions. Elevated HbA1c, decreased GFR, and diminished albumin levels emerged as pivotal predictors of adverse outcomes, emphasizing the imperative for precise clinical interventions and rigorous monitoring in T2DM management.

*Keywords:* *type 2 diabetes, mortality, Hba1c*

[Abstract:2709]

## THE EFFECT OF SGLT-2 INHIBITORS ON TRIGLYCERIDE/GLUCOSE INDEX IN DIABETIC PATIENTS

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**Background:** we aimed to evaluate the effect of sodium-glucose cotransporter-2 (SGLT-2) inhibitors on triglyceride glucose index, in patients with type 2 Diabetes Mellitus.

**Methods:** A cross-sectional study of 55 diabetic patients in an internal medicine clinic in Turkey. Triglyceride, glucose and glycosylated haemoglobin values were measured at the beginning of the treatment and at the 3rd month follow-up. Patients receiving medical treatment with a diagnosis of dyslipidaemia and patients who have started an additional antidiabetic drug other than SGLT 2 inhibitors in the same period were excluded.

**Results:** The mean age of the patients was 62.7 (±10.2) years, and the median duration of SGLT-2 inhibitor use was 18 (3-60) months. Fasting plasma glucose, triglyceride index and HBA1C values before starting SGLT-2 inhibitor treatment and in the 3rd month of treatment decreased significantly (p<0.001; p=0.002; p<0.001, respectively). Triglyceride ang HbA1c values both before treatment and in the 3rd month of treatment showed a correlation (pre-treatment r=0.516 and p<0.001; 3rd month r=0.448 and p=0.001). While the change in triglyceride glucose index was not found to be significant in those with coronary artery disease (p=0.403), it differed significantly in those without coronary artery disease (p=0.001). Similarly, while the change in triglyceride glucose index was not found to be significant in patients with nephropathy (p=0.940), it differed significantly in patients without nephropathy (p<0.001).

**Conclusions:** SGLT-2 inhibitor usage significantly reduces triglyceride index in diabetic patients, and new studies are needed to investigate the effect of these drugs on triglyceride index among pre-diabetic patients.

*Keywords:* *SGLT-2 inhibitor, triglyceride glucose index, dapagliflozin, empagliflozin*

| | |
|---|---|
| Mean age (±SD) years | 62.76 (10.27) |
| Gender male n (%) | 31 (56.4) |
| Dapagliflozin 10 mg n (%) | 15 (27.3) |
| Empagliflozin 10 mg n (%) | 37 (67.3) |
| Empagliflozin 25 mg n (%) | 3 (5.5) |
| Retinopathy n (%) | 12 (21.8) |
| Nephropathy n (%) | 15 (27.3) |
| Neuropathy n (%) | 16 (29.1) |
| Hypertension n (%) | 39 (70.9) |
| Coronary artery disease n (%) | 14 (25.1) |
| Cerebrovasculary disease n (%) | 2 (3.6) |

***Table 1.*** *Demographical properties of the study population.*

| | Before SGLT-2 inhibitor treatment | 3rd month of SGLT-2 inhibitor treatment | p-value |
|---|---|---|---|
| Fasting glucose median (min-max) mg/dl | 180 (74.00-600.00) | 152 (48.97-140.00) | <0.001 |
| Triglyceride median (min-max) mg/dl | 163 (62.00-433.00) | 162 (52.00-441.00) | 0.265 |
| Low density lipoprotein mean (±SD) mg/dl | 99.50 (0.34) | 91.00 (31.15) | 0.051 |
| Triglyceride glucose index mean (±SD) | 5.18 (0.34) | 5.01 (0.32) | 0.002 |
| Glycosylated haemoglobin mean (±SD) % | 8.93 (1.98) | 7.69 (1.10) | <0.001 |

***Table 2.*** *Biochemical properties before and after SGLT-2 inhibitor treatment.*

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[Abstract:2776]

## PREVALENCE OF HYPOGLYCAEMIA AMONG DIABETIC PATIENTS WHO DRIVE AND RIDE

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**Purpose:** Driving and riding are complex processes that require considerable cognitive and physical functions. Hypoglycaemia is a common side effect of antidiabetic medications, impairing many cognitive domains necessary for safe driving and riding. We investigated the prevalence of hypoglycaemia among people who drive and ride vehicles.

**Methods:** A cross-sectional study of diabetic patients attending medical clinics in 18 Sri Lankan hospitals from November 2022 to April 2023. Hypoglycaemia was diagnosed by symptoms and capillary blood sugar <70 mg/dL or symptoms alone. Data was collected through an interviewer-administered questionnaire.

**Findings:** There were 485 diabetic patients (mean age 56.3+11.8 years, males 85.4%) who drove and rode.

The median duration of their diabetes was 7 (IQR 11) years. There were 217 (44.7%) drivers: light vehicles (162), heavy vehicles (36), three-wheelers (10) and 268 (55.2%) riders: motor bikes 200, pedal cycles 68.

A total of 323 (66.6%) had experienced at least single episode of hypoglycaemia during last one year and 51 (10.5%) of them had experienced hypoglycaemia (14 motorbikers, 9 pedal cyclists, 20 light vehicle drivers, 6 heavy vehicle drivers, and 2 three-wheel drivers) including 14 (27.4%) hospital admissions for hypoglycaemia during driving or riding. The commonest symptoms were dizziness (189, 39%), sweating (226, 46.6%) and blurred vision (154, 31.8%). Majority of them were either on sulphonylurea (285, 58.8%) or insulin (98, 20.2%). Five (1%) had hypoglycaemia following alcohol consumption. None had accidents while driving or riding. Considerable number (10%) of patients experienced hypoglycaemia while driving and riding. Hypoglycaemia is an important problem that needs to be considered and addressed among diabetic drivers and riders.

*Keywords:* *diabetes mellitus, hypoglycaemia, driving*

[Abstract:2801]

## DEVELOPMENT OF CO-DESIGNED VIRTUAL SELF-MANAGEMENT SUPPORT IN DIABETES TYPE 1 AND TYPE 2 IN A SINGLE AMBULATORY HOSPITAL SETTING IN FRENCH-SPEAKING SWITZERLAND: A QUALITATIVE STUDY OF NEEDS, EXPERIENCES AND KNOWLEDGE TRANSFER

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**Background:** Patients with diabetes need to acquire the technical and medical knowledge to manage their disease within their means while recognizing their physical, cognitive, emotional, social and spiritual needs to engage in decision-making.

Less than 30% of patients participate in self-management education programs, and more flexible, accessible options are not widely available.

**Methods:** A qualitative interview study was used to co-design a virtual platform of self-management support. The data collection was conducted between December 2021 and May 2022 using semi-structured focus group interviews with patients and healthcare professionals working in interdisciplinary diabetes care teams. The data were analysed thematically.

**Results:** 10 patients with diabetes and 10 healthcare professionals participated in 9 focus group interviews. The virtual self-management support platform includes fifty-six on-demand short videos (lasting between 1 min 18 sec to 5 min 55 sec) on technical, medical, nutritional, emotional and psycho-social themes that provide personalized support to patients.

The platform has a modular structure, and the content can be individually activated or expanded depending on the specific needs of the patients. It also contains emergency and contact addresses, direct exchange options, quizzes, and a glossary. The content of the platform can be used between regular medical appointments to enable individual learning and assist the knowledge transfer from healthcare professionals to patients.

**Conclusions:** This co-designed virtual support platform may assist patients in their learning processes about diabetes and in living

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with the disease whilst helping them to make safe decisions and actively participate in shared decision-making with healthcare professionals.

*Keywords:* *virtual self-management support, patient education, diabetes*

References

Roehlen N, Hilger H, Stock F, Gläser B, Guhl J, Schmitt-Graeff A, et al. 17q12 deletion syndrome as a rare cause for diabetes mellitus type MODY5. J Clin Endocrinol Metab. 2018;103(10):3601-10.

*Keywords:* *diabetes mellitus, jaundice, monogenic*

[Abstract:2861]

## DIABETES AND JAUNDICE DUE TO 17Q12 DELETION

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**Case Presentation:** 34-year-old male under study for jaundice, pruritus and weight loss. No previous history of interest, toxic habits, or chronic treatments. BMI 24.76 kg/m$^2$. Additional tests: glucose 151 mg/dL (<126 mg/dL), AST 111 IU/L (8-33I U/L), ALT 309 IU/L (4-36 IU/L), GGT 375 IU/L (6-28 IU/L), alkaline-phosphatase 269 IU/L (44-147 IU/L), total-bilirubin 14.8 mg/dL (0.1-1.2 mg/dL), direct-bilirubin 9.6 mg/dL (<0.3 mg/dL). Normal ferritin, alpha-1-antitrypsin, hepatic autoimmunity, and abdominal ultrasound. Cholangioresonance: pancreatic body atrophy. Liver biopsy: signs of cholestasis without inflammation or fibrosis. Diagnosis of diabetes with rising basal glycaemia and HbA1c 7.1% (<6.5%), C-peptide 2.24 ng/mL (0.81-3.85 ng/mL), negative antiGAD and anti-IA2. Low faecal elastase (103, normal >200). Elevated blood-bile-acids (>200, normal<10). Insulin treatment, ursodeoxycholic acid 500 mg/8 hours, pancreatin 25000 IU 8 tablets/day were started.

**Clinical Hypothesis:** Monogenic diabetes is suspected.

**Diagnosis:** Panel of 75 genes related to cholestasis and associated syndromes showed partial deletion of chromosome 17 long arm (17q12) encompassing *HNF1B* gene.

**Discussion:** Monogenic diabetes is a clinically heterogeneous disorder characterised by diabetes diagnosed at an early age with autosomal dominant inheritance and negative pancreatic autoimmunity. *HNF1B* gene mutation is associated with MODY5 diabetes. 17q12 deletion gives rise to a phenotype called RCAD (renal-cysts-and-diabetes) syndrome, characterised by a congenital renal development alteration (although not present in our patient). This syndrome may also be associated with pancreatic atrophy and cholestasis.It's crucial to make a broad differential diagnosis of diabetes based on the patient's characteristics. The extrapancreatic manifestations should increase our suspicion of monogenic diabetes.

[Abstract:2890]

## THE DIAGNOSIS AND TREATMENT OF AN ELDERLY FEMALE PATIENT WITH LATE-DIAGNOSED ACROMEGALY

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**Background:** Acromegaly is seen rarely in older ages. Female patients with acromegaly presented with lower IGF-1 concentrations than males, resulting in delayed diagnosis and diagnosed at older ages. Higher comorbidities occur in women due to longer-term exposure to the GH. Hypertension is one of the main complications of acromegaly. We present a 79-year-old female patient diagnosed with acromegaly while investigating uncontrolled hypertension.

**Case Presentation:** Patient with hypertension, hyperlipidaemia noticed enlargement and coarsening of the face, hands and feet within 1-2 years. Also patient's skin tags increased in size. There weren't complaints of headache, excessive sweating or snoring. prognathism and macroglossia were detected. In pituitary MRI, 20 mm macroadenoma was observed in the left part of the pituitary gland. Serum GH (12.7 ng/mL) and IGF-1 (482 ng/mL) levels were elevated. Serum GH wasn't supressed with OGTT (Glucose: 182 mg/dL and GH: 38 ng/mL). No optic atrophy or decrease in visual field was detected. In thyroid USG, multiple nodules were seen. Transthoracic echocardiography showed ejection fraction of 60% and 2-3 tricuspid regurgitation, and trace mitral regurgitation. Since the patient didn't prefer pituitary surgery, lanreotide treatment planned.

**Discussion:** Since acromegaly findings can be confused with changes due to aging, there may be a delay in diagnosis. Although surgery is still the first option in elderly, evaluation should be made on a patient basis. GH, IGF-I levels and tumour size are inversely proportional to surgical success. Somatostatin receptors ligands may be first option for medical treatment in elderly patients with acromegaly.

*Keywords:* *acromegaly, elderly, pituitary macroadenoma*

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[Abstract:2909]

## A LIVEDO RETICULARIS REVEALING A PARAGANGLIOMA: A CASE REPORT

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**Introduction:** Among the main causes we find APS, systemic lupus erythematosus, polyarteritis nodosa, cryoglobulinemia and cold agglutinin diseases, cholesterol emboli, some cancers and pheochromocytoma.

**Observation:** A 17-year-old young woman was examined for asthenia, episodes of sweating and limb spasms that appeared a month earlier. At the time of the physical examination, syncopal discomfort had occurred and hight blood pressure 'HBP' was found at 160/110 mmHg, HR at 150, livedo reticularis with coldness and cyanosis of the extremities were also observed. Cardiovascular examination noted rapid heartbeat and ECG showed sinus tachycardia. No flush syndrome and no superficial tumoral syndrome were associated in the physical examen.

The assessment, oriented towards the search for pheochromocytoma, found an increase plasma free metanephrines. The kidney function, glycaemia, HBA1C, liver tests and TSH level were normal. The antibodies (ANA, APL) were negative. On ABPM, systolo-diastolic HBP was confirmed. A dilated left ventricle with an EF of 30%, type 3 diastolic dysfunction, a dilated left atrium and SPAP of 50 mmHg were noted in cardiac ultrasound. Abdominal CT revealed a richly vascularized right retroperitoneal mass suggesting a paraganglioma 'PPGLs' and the MIBG scintigraphy showing a right paravertebral tumour of neuroectodermal origin without distant locations. Surgery was deferred due to invasion of the abdominal aorta and the patient was proposed and functional MIBG and catecholamine blockade drugs.

**Conclusions:** A livedo can reveal a PPGLs. Clinical context combining HBP, heavy sweating, rapid heartbeat and syncope are good indicators of this diagnosis, so physicians have to think about it!

***Keywords:*** *livedo, paraganglioma, sympathetic parangliomas, MIBG scintigraphy*

[Abstract:3021]

## ADRENAL INCIDENTALOMA: A FACTOR IN NON-REMISSION OF RHEUMATOID ARTHRITIS

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**Objective:** Adrenal incidentaloma refers to the detection of a mass larger than 1 cm in the adrenal gland during the investigation of other etiologic causes. We here report a patient with rheumatoid arthritis (RA) who was not in remission with conventional and targeted disease-modifying anti-rheumatic drugs (DMARDs) possibly liked to an adrenal mass.

**Case Presentation:** A 51-year-old woman was admitted with inflammatory pain and stiffness in small joints of the hand and acute phase elevation. She was diagnosed with RA 10 years ago and her symptoms could not be suppressed with conventional DMARDs and tofacitinib. Due to persistent clinical findings and acute phase elevation targeted DMARDs were discontinued, and methotrexate and glucocorticoid treatment were chosen. Her medical history was otherwise unremarkable. Physical examination revealed swelling and tenderness in both wrists. Rheumatoid factor and anti-cyclic citrullinated peptide antibodies were negative and C-reactive protein level was elevated. Ultrasonography revealed a 17x12 cm hypoechoic lesion in the right adrenal region. MR imaging revealed a 12.5x14x14 cm, heterogeneously intensified contrasting mass with central necrosis, which was thought to be pheochromocytoma. Adrenal functional tests were normal. FDG-PET showed heterogeneously increased FDG uptake (SUV max: 7) mass originating from the right adrenal gland and related lymph nodes (max. SUV max: 3.7). Histopathological examination revealed an angiomyolipoma following total excision. Traditional treatments for RA were discontinued. The patient is in remission without treatment in her postoperative 42$^{nd}$ month.

**Conclusions:** In patients with RA, when remission is not achieved with standard care, it is important to evaluate possible underlying causes before treatment modification.

***Keywords:*** *Rheumatoid arthritis, CRP, incidentaloma, leiomyoma*

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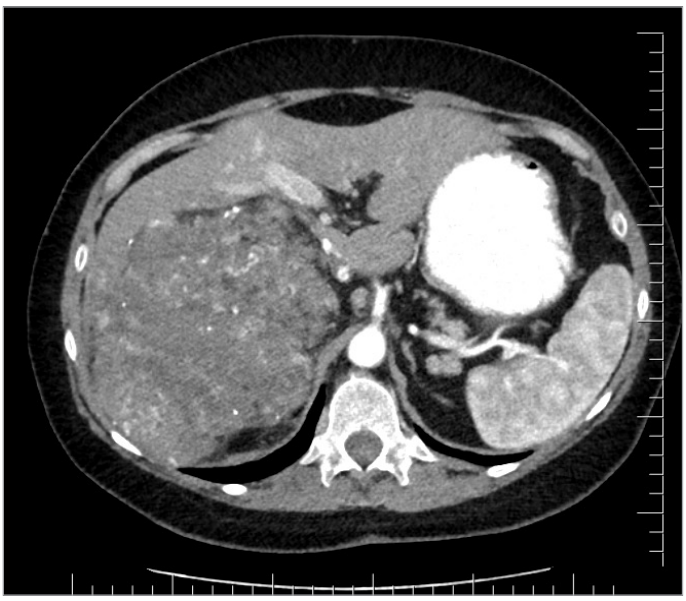

*Figure 1.*

[Abstract:3047]

## IS THERE A RELATIONSHIP BETWEEN EMOTIONAL, EXTERNAL, RESTRAINED EATING BEHAVIORS AND METABOLIC SYNDROME?

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In our study we aimed to evaluate the association between excessive eating behaviours such as emotional, external and restrained eating with the development of metabolic syndrome, we found that restrained eating behaviour is associated with the development of Metabolic Syndrome in women.

**Methods:** Study group consisted of 169 women and 58 men consecutively examined at the outpatient clinic of Internal Medicine. Patients with illiteracy, mental retardation, malignancy, factors that may affect waist circumference measurement such as hernia, ascites and those with orthopaedic abnormalities were excluded from the study. To determine the eating behaviours, Turkish version of Dutch eating behaviour questionnaire (DEBQ) was used after the validity and reliability of the test have been verified. National cholesterol education program adult treatment panel III was used to diagnose metabolic syndrome.

**Results:** No statistically significant difference was found between men and women with and without MS in terms of emotional and externality eating behaviours (p> 0.05). The same results were obtained when patients were divided into obese and non-obese patients. However, restrictive eating behaviours scores were significantly higher in women with metabolic syndrome or obesity than those who non-obese or did not have metabolic syndrome (p <0.05).

**Conclusions:** In women, restrained eating behaviour is associated with the development of metabolic syndrome. The difficulties encountered in the prevention of obesity, metabolic syndrome and its complications as well as the inability of the maintenance of similar diet programs by the patients reveals the importance of the evaluation and elimination of eating behaviours that may cause these health problems.

**Keywords:** *eating behaviours, emotional eating, externality eating, restrained eating, metabolic syndrome*

| Eating Behaviour | Women with MS (n=57) | Women Without MS (n=112 ) | p |
|---|---|---|---|
| Emotional | 1.81+0.79 | 1.75+0.72 | >0.05 |
| External | 2.41+0.72 | 2.46+0.77 | >0.05 |
| Restrained | 2.91+0.78 | 2.51+0.77 | <0.05 |

***Table 1.*** *Statistical analysis table.*
*Statistical analysis of the relationship between emotional, external and restrained eating behaviours and the development of metabolic syndrome in women.*

[Abstract:3058]

## EUGLYCEMIC KETOACIDOSIS AND SEVERE GASTROINTESTINAL SYMPTOMS IN A RENAL TRANSPLANT RECIPIENT USING SGLT-2 INHIBITORS

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Due to the limited data on the safety of sodium glucose transporter 2 inhibitors (SGLT-2i) in renal transplant (RTx) patients, their use is restricted, unlike in native kidney patients. In this case, euglycemic ketoacidosis (EKA) related to the use of SGLT-2 inhibitors in an RTx patient has been investigated.

N.S., a 48-year-old male with a history of hypertension, diabetes mellitus, and cadaveric RTx due to nephropathy, presented to the emergency department with a complaint of brown vomiting that started the day before. The patient was using tacrolimus, mycophenolate mofetil, methylprednisolone, ramipril, lercanidipine, and acetylsalicylic acid. Prandial insulin was discontinued six months ago and replaced with metformin, dapagliflozin, and pioglitazone while on basal-bolus insulin therapy. Four months ago, the patient started experiencing nausea and vomiting unresponsive to antiemetics. Nausea occurred daily, and vomiting occurred 1-2 times a week. The admission blood glucose was <200 mg/dL, and due to acidosis and ketonuria, the patient was diagnosed with EKA associated with dapagliflozin. Oral antidiabetic medications were discontinued, and with hydration and insulin infusion, acidosis resolved within 24 hours. Despite regulated glucose levels and normalized urea and creatinine values, the patient continued to experience severe nausea and vomiting, leading to a gastroscopy. Findings were reported as grade D esophagitis and erythematous pangastritis. Proton pump inhibitor and symptomatic treatment were ineffective.

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In conclusion, the development of EKA and resistant gastrointestinal symptoms in a patient with a history of RTx using SGLT-2 inhibitors is intriguing and reported for the first time in the known literature.

*Keywords:* *diabetes mellitus, SGLT-2 inhibitors, euglycemic ketoacidosis*

| Parameter | Admission | 24 Hours | Normal Reference Range |
|---|---|---|---|
| Glucose (mg/dL) | 150 | 175 | <200 |
| Urea (mg/dL) | 63 | 40 | 18-55 |
| Creatinine (mg/dL) | 1.5 | 0.87 | 0.7-1.2 |
| pH | 7.24 | 7.42 | 7.35-7.45 |
| pCO2 (mmHg) | 30.7 | 27.5 | 35-48 |
| HCO3 (mmol/L) | 12.8 | 20.7 | 22-26 |
| Lactate (mmol/L) | 4.3 | 1.1 | 0.5-1.6 |
| CRP (mg/dL) | 5 | 4.7 | 0.5 |
| WBC (count /mcL) | 6.77 | 7.3 | 3.91-8.77 |
| Hb (g/dL) | 16.4 | 16 | 11.9-15.4 |
| Urine Density | 1,028 | 1,030 | 1,002-1,030 |
| Urine pH | 5 | 6 | 5-8 |
| Glucose in Urine | ++++ | ++++ | Negative |
| Keton in Urine | +++ | +++ | Negative |
| Leukocyte in Urine | 1 | 0 | 0-8 |
| Erythrocytes in Urine | 2 | 1 | 0-3 |

***Table 1.*** *Biochemical Parameters.*

[Abstract:3060]

## TREATMENT ADHERENCE, PERSISTENCE AND CLINICAL EFFICACY IN PATIENTS TREATED WITH TERIPARATIDE: REAL-LIFE DATA

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**Aim:** We aimed to evaluate the efficacy, safety, and treatment compliance with teriparatide, as well as its effects on BMD and laboratory data in patients who started teriparatide treatment due to osteoporotic fractures in this study.

**Methods:** Patient's radiological, biochemical, laboratory findings, history of fractures were recorded. The dates of starting, interrupting, and completing teriparatide treatment and side effects were also recorded.

**Results:** The mean duration of teriparatide use was 13.6±6 months. Of the 141 patients prescribed teriparatide, 45 are still undergoing treatment and 11 (7.8%) didn't start the treatment at all. It has been determined that 44 (45.8%) of the 85 patients who continued the treatment have completed the proven 18-month treatment period. The cessation ratio of treatment due to side effects was 6.1%. In patients using teriparatide for 6 months or more, there was a significant increase in BMD values of L1-4 vertebrae ($p < 0.0001$) and femoral neck ($p = 0.04$) after 18 months. The levels of alkaline phosphatase ($p = 0.001$), osteocalcin ($p < 0.0001$) and CTx ($p < 0.0001$) increased significantly from baseline at the end of 18 months.

**Conclusions:** Our findings clearly demonstrated that longer persistence to teriparatide associated with significant increase in vertebral and hip BMD values. Furthermore, considering the rate of treatment cessation due to side effects was only 6.1%, it has been concluded that teriparatide therapy for 18 months is relatively safe. Moreover, in order to achieve long-term adherence and persistence, promising strategies including appropriate patient education, follow-up and support programs should be developed.

*Keywords:* *osteoporosis, teriparatide, persistence, adherence, fracture*

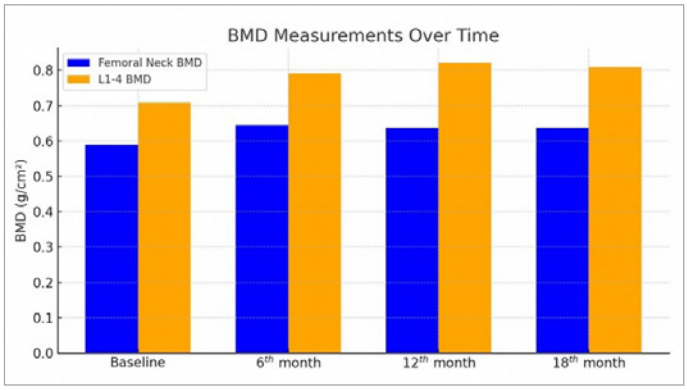


***Figure 1.*** *Femoral neck and L1-L4 vertebral BMD comparison over treatment period.*

[Abstract:3068]

## IS GLYCEMIA ALWAYS INNOCENT?

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**Introduction:** Pancreatic ductal adenocarcinoma stands as a leading cause of cancer-related deaths without early diagnostic strategies. Retrospective studies reveal that 0.5-1% of individuals over 50 years with newly identified biochemical diabetes meet the criteria for new-onset hyperglycaemia and diabetes (NOD), leading to a diagnosis of pancreatic ductal adenocarcinoma within three years. Some studies advocate screening individuals with newly diagnosed diabetes for pancreatic adenocarcinoma. In this case study, we present a patient with a diagnosis of type 2 diabetes mellitus, uncontrolled hyperglycaemia, and subsequent diagnosis of pancreatic ductal adenocarcinoma after presenting to the emergency department.

**Case Presentation:** A 72-year-old male presented to the emergency department with weakness, dry mouth, and nausea. Despite a known history of type 2 diabetes mellitus, he experienced uncontrolled blood sugar levels and a 10-kilogram weight loss in the last two months. Physical examination revealed

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no pathological findings. Laboratory investigations showed elevated glucose levels, liver enzymes within normal range, and a notably low magnesium level. Abdominal computed tomography revealed a pancreatic lesion. The patient was admitted for further investigation and initiated on basal-bolus insulin therapy. Magnetic resonance cholangiopancreatography (MRCP) indicated a hypovascular pancreatic mass with extensive involvement of surrounding vessels. Endoscopic ultrasound-guided biopsy confirmed the diagnosis of pancreatic adenocarcinoma.

**Discussion:** Pancreatic ductal adenocarcinoma remains a leading cause of cancer-related mortality without early detection strategies. This case emphasizes the importance of considering malignancies in individuals with type 2 diabetes mellitus and uncontrolled hyperglycemia presenting to the emergency department. Screening for malignancies should be a crucial aspect of their management.

*Keywords:* *hyperglycaemia, adenocarcinoma, malignancy*

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