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10–13 May 2025, Copenhagen, Denmark

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that while children with T1D and celiac disease, or those with poor metabolic control, may experience more frequent hypoglycemic events, the duration of hypoglycemia may be more critical in the development of hypoglycemia unawareness.

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JOINT2840

Prognostic value of the neutrophil-to-lymphocyte ratio for acute appendicitis in children with acute abdominal pain and T1DM

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Background
Abdominal pain is often associated with T1DM and DKA in children. Underlying causes include not only functional disorders and impaired motility of GIT but also common surgical emergencies, namely acute appendicitis (AA) and peritonitis. The neutrophil-to-lymphocyte ratio (NLR) has recently become a valuable tool for diagnosing DKA and endothelial dysfunction in T1DM. Moreover, several studies have shown that NLR serves as an indicator of systemic inflammation and reflects a balance between the latter and immunity. However, its prognostic discriminative role between surgical emergencies and abdominal pain in DKA in children with T1DM remains unclear.
Aim
We aimed to analyze the utility of NLR in the differential diagnosis of surgical (acute appendicitis and peritonitis) and non-surgical causes of acute abdominal pain in children with T1DM and/or DKA.
Material and Methods
102 pediatric patients were enrolled in this study and further divided into three groups: group I – patients with DKA and acute abdominal pain ($n = 21$); group II ($n = 70$) - patients with acute appendicitis; group III ($n = 11$) – patients with acute appendicitis and T1DM/DKA. Diagnosis of acute appendicitis was confirmed by pathology. All patients underwent routine workup. Additionally, blood gases were evaluated in groups I and III. NLR was calculated as a ratio between the neutrophil and lymphocyte counts measured in peripheral blood. Written informed consent was obtained from the parents.
Results
The mean level of NLR was significantly different between group I (5. 06 ± 3. 13) and two other groups with AA (group II – 9. 40 ± 8. 03; group III – 9. 95 ± 8. 6), $P = 0$, 01786; $P = 0$. 0254, respectively). However, there was no difference between groups II and III($P = 0$. 8348). It may be due to the leading role of intraabdominal infection in the development of inflammation in both groups. Further ROC analysis has shown that NLR may be used as a prognostic marker of intraabdominal surgical diseases (AUC = 0. 827; 95% CI = 0. 671-0. 983; $p < 0$. 01) at a cut-off value of 7. 81 with sensitivity = 72. 7% (CI = 43. 4-90. 2 %) and specificity = 85. 7% (65. 3-95. 0 %), Youden's index – 0. 58. We also found that NLR strongly inversely correlates with the LYM fraction of CBC ($r_s = -0.98$; $p < 0$. 0001). It shows the crucial role of immunity in the natural course of AA in children with T1DM.
Conclusion
NLR is significantly higher in children with T1DM and AA than in children with non-surgical acute abdominal pain. A cut-off value of 7. 81 may be used to predict the surgical cause of acute abdominal pain (AA) in children with T1DM and/or DKA.

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JOINT4019

Beyond glycemic control: managing rare complications in type 1 diabetes

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Effective metabolic control is crucial for preventing microvascular and macrovascular complications in patients with type 1 diabetes mellitus (T1DM). Here, we present a case of a young woman with T1DM who developed two rare complications: acute insulin neuritis and diabetic myonecrosis. A 45-year-old woman with T1DM since 2009, followed by the Endocrinology Department, experienced, since her diagnosis, irregular medical follow-up, poor adherence to treatment, and inadequate glycemic control. She developed severe microvascular complications, including proliferative diabetic retinopathy (treated with photocoagulation), diabetic nephropathy, and autonomic dysfunction with gastroparesis. Additionally, she suffered from significant macrovascular complications, such as an acute myocardial infarction in 2015 (managed with angioplasty) and peripheral arterial disease of the lower limbs. In 2022 and 2023, her adherence to treatment improved, leading to intensified insulin therapy and a rapid reduction in HbA1c from 14. 2% to 6. 6%. During this period, she reported paresthetic pain in the lower limbs along with mild-to-moderate paraparesis. Electromyography confirmed moderate sensorimotor axonal neuropathy, which later progressed to Charcot neuroarthropathy. The most likely cause was treatment-induced neuropathy, also known as acute insulin neuritis. She was started on tapentadol and pregabalin, resulting in significant pain relief. She was referred to a Diabetic Foot specialist and, in October 2024, underwent surgery to stabilize her left foot. In 2023, she had a prolonged hospitalization due to diabetic myonecrosis with abscess formation in the gastrocnemius muscles. She presented with pain, swelling, and redness in the right calf, along with functional impairment that lasted for two weeks, without fever or trauma history. MRI revealed multiple abscessed collections within the muscular planes of the right leg, with an extensive inflammatory process suggestive of abscessed hematomas. A muscle biopsy confirmed acute inflammatory infiltration and necrosis of skeletal muscle, consistent with spontaneous diabetic myonecrosis. She underwent surgical drainage of the abscesses and received broad-spectrum antibiotic therapy for 20 days. Currently, she remains under regular follow-up, with HbA1c levels ranging between 7. 6% and 8. 4%. This case underscores the complexity of managing T1DM and highlights the importance of recognizing rare complications early to minimize their impact on patients' quality of life.

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JOINT190

The interplay of cortisol, trygliceride glucose index and microalbuminuria in type 2 diabetes: a prospective observational case-control study

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Background
Studies have suggested possible link between diabetic kidney disease (DKD) and cortisol levels. Relationship between DKD and triglyceride-glucose (TyG) index is currently investigating. However sole relationship between cortisol, TyG index and microalbuminuria in diabetic population is unknown. This study aims to investigate the potential association and interplay between microalbuminuria, cortisol, and TyG index in DMT2 patients.
Material and Methods
One hundred and seventy participants were enrolled in this study, comprising one hundred patients with DMT2 and seventy healthy volunteers. Anthropometric and biochemical characteristics were evaluated in all participants. Parameters measured included fasting blood glucose, HbA1c, 8h cortisol, cortisol after low-dose overnight dexamethasone suppression test (DEX cortisol), ACTH, urinary albumin-to-creatinine ratio (UACR), Trygliceride Glucose Index (TyG) (calculated as TYG = ln (fasting triglycerides × fasting glucose/2)). Microalbuminuria is defined as UACR > 30-≤ 300mg/g. Statistical analyses included correlation analysis, multiple regression, and subgroup analysis. The study protocol was approved by the Ethical Committee of the University Clinical Centre Tuzla, under the number 02-09/2-50/14.
Results
ROC analysis showed that cortisol (AUC: 0. 733, $p < 0$. 001) and TyG index (AUC: 0. 968, $p < 0$. 001) effectively discriminate between T2DM patients and controls, with optimal cut-off values of >342 for cortisol and >8. 49 for TyG. Strong correlations were found between TyG index and microalbuminuria ($r = 0$. 7463, $p < 0$. 0001) and cortisol and microalbuminuria ($r = 0$. 5151, $p < 0$. 0001), suggesting that higher levels of TyG index and cortisol are associated with more pronounced microalbuminuria. Median cortisol levels increased from 324. 0 (IQR: 233. 0–400. 0) in the normoalbuminuria group to 518. 7 (IQR: 424. 0–593. 2) in the microalbuminuria group, while the Tyg values increased from 8. 5 (IQR: 8. 2–8. 9) in normoalbuminuria to 10. 2 (IQR: 9. 8–10. 5) in microalbuminuria.