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**RETROSPECTIVE STUDY OF PATIENTS WITH ACUTE CORONARY SYNDROME:
A FOCUS ON CLINICAL FACTORS AND INFLAMMATORY MARKERS**

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Relevance. Acute coronary syndrome (ACS) remains a leading cause of mortality worldwide, yet recovery is heterogeneous. While troponin offers limited long-term prognostic value, inflammatory markers from routine blood counts are robust predictors of adverse events. These indices enhance risk stratification beyond traditional metrics and hold promise for guiding targeted anti-inflammatory strategies to improve patient outcomes.

Aim: to analyze the relationship between inflammatory markers and associated clinical characteristics in patients presenting with acute coronary syndrome.

Materials and methods. This retrospective study analyzed 37 patients with ACS (aged 64 [IQR:54.00;73.00]) at Minsk City Emergency Hospital between December 2025 and March 2026. The cohort included ST-segment-elevation myocardial infarction (STEMI) and non-ST-elevation MI (NSTEMI) cases with typical or atypical symptoms. Evaluated data included age, gender, cardiovascular risk factors, comorbidities, vital signs, and timing parameters in management of this patients. Laboratory, instrumental, and clinical outcomes, including revascularization and in-hospital complications, were also assessed. Data were processed using Microsoft Excel and Statistica 10.0.

Results and their discussion. In the study cohort of 37 patients, 81% (n=30) were male and 19% (n=7) female. Diagnoses included 73% (n=27) STEMI and 27% (n=10) NSTEMI cases. Overall, 84% (n=31) of patients presented with typical symptoms, observed in 85% (n=23) of STEMI and 80% (n=8) of NSTEMI cases. Hypertension was the most prevalent comorbidity (100%, n=37), followed by chronic kidney disease (24%, n=9) and diabetes mellitus (19%, n=7). Timing parameters showed that STEMI patients had a median onset-to-first-medical-contact (FMC) of 3 hours [IQR:0.68; 14.00] and a door-to-balloon (DTB) time of 0.63 hours [IQR:0.08; 2.75]. Inflammatory marker analysis identified an elevated Systemic Inflammation Response Index (SIRI) as the most frequent abnormality (67.57%, n=25), followed by elevated Systemic Immune-Inflammation Index (SII) (54.05%, n=20), Immature Granulocyte (IG) count (21.62%, n=8), and Neutrophil-to-Lymphocyte Ratio (NLR) (13.51%, n=5). A Mann-Whitney U test revealed that STEMI patients had significantly higher SIRI levels (Median: 2.78, IQR:1.44; 3.88) than NSTEMI patients (Median: 1.35, IQR:1.10; 1.86, $p=0.023$, $z=2.27$). The Spearman correlation matrix demonstrated a moderate negative correlation between inflammatory markers and Left Ventricular Ejection Fraction (LVEF), notably for IG% ($r=-0.3402$). Strong positive correlations were found between NLR and SIRI ($r=0.7846$) and SII and SIRI ($r=0.6535$). Additionally, the duration from onset to first medical contact negatively correlated with LVEF ($r=-0.3947$), confirming that treatment delays are linked to greater impairment of ventricular function. Of the total cohort, 11% (n=4) did not undergo coronary angiography in which 75% (n=3) were NSTEMI patients and 25% (n=1) was a STEMI patient. Symptoms of these patients were split equally between typical and atypical presentations (n=2 each). Overall, 27% (n=10) of the cohort did not receive revascularization. Reasons for non-intervention included patient refusal (40%), the suitability of conservative management (30%), and high-risk comorbidities (20%).

Conclusions. Elevated inflammatory markers, particularly SIRI, serve as critical indicators of MI severity, specifically in STEMI cases. The significant correlation between high inflammatory indices, treatment delays, and reduced LVEF underscores their prognostic value. Integrating these markers into routine assessments could significantly enhance risk stratification and clinical management in ACS patients.