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KIRIKKALE UNIVERSITY

FACULTY OF MEDICINE

DEPARTMENT OF CARDIOLOGY

STUDY DOCUMENTS OF

“Association Between SYNTAX Score and Leukoglycemic Index In Patients Wiht Acute Coronary Syndrome”

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Study Design and Methods

Our study was designed as a single-center, retrospective, cross-sectional, observational study. It was conducted after approval by the Ethics Committee of the Faculty of Medicine, Kırıkkale University. Patients who presented to the emergency department or cardiology outpatient clinic between 2015 and 2023 with suspected acute coronary syndrome (ACS) and underwent coronary angiography were retrospectively evaluated.

In this study, the SYNTAX scores of patients diagnosed with ACS and who underwent coronary angiography, followed by a decision for Percutaneous Coronary Intervention (PCI) or Coronary Artery Bypass Grafting (CABG), were calculated and their relationship with the Leucoglycemic Index (LGI) was investigated.

Between 2015 and 2023, a total of 1209 patients presenting to the cardiology outpatient clinic or emergency department of Kırıkkale University Faculty of Medicine with ACS were retrospectively screened. After applying exclusion criteria, 552 patients were included in the study.

Coronary angiography images were retrieved from the hospital's Picture Archiving and Communication System (PACS). Using quantitative coronary angiography (QCA), lesions were defined as significant obstructive coronary artery disease (CAD) if there was >50% stenosis in the left main coronary artery (LMCA) or >70% stenosis in coronary arteries with a diameter >1.5 mm. SYNTAX scores were calculated using the official SYNTAX Score Calculator website.

Standard laboratory tests performed at admission were retrospectively obtained from the hospital information system. Complete blood count and biochemical data were recorded. The LGI value was calculated as the product of blood glucose (mg/dL) and leukocyte count (10^9/L), divided by 1000.

Formula:
LGI = [Glucose (mg/dL) * Leukocyte count (10^9/L)] / 1000

Inclusion Criteria

- Adults aged ≥18 years
- Patients undergoing coronary angiography due to acute coronary syndrome
- Non-obese patients

Exclusion Criteria

- Patients <18 years of age
- Patients with diabetes mellitus (diagnosed by ongoing oral or insulin therapy and/or fasting glucose ≥126 mg/dL with HbA1c ≥6.5%)
- Patients with atrial fibrillation, pacemaker history, asthma, pulmonary hypertension, pregnancy, anemia, malignancy, rheumatoid arthritis, peripheral artery disease

- Obese patients (BMI >30 kg/m²)
- Patients with unavailable medical records

Study Variables

- **Independent variables:** Age, sex, comorbidities, laboratory results (white blood cell count, hemoglobin, platelet count, glucose), SYNTAX score
- **Dependent variables:** Admission hemogram and glucose values

Statistical Analysis

Data analysis was performed using SPSS for Windows, version 25.

- Categorical variables were expressed as frequencies and percentages.
- Continuous variables were expressed as mean ± standard deviation or median (minimum–maximum), depending on distribution.
- Relationships between categorical variables were assessed using the Chi-square test.
- For continuous variables, normality was tested with the Shapiro–Wilk test and homogeneity of variance with the Levene test.
- Normally distributed data were compared using the independent samples Student's t-test; non-normally distributed data were analyzed with the Mann–Whitney U test.
- The relationship between LGI and SYNTAX score was evaluated using Pearson correlation analysis.
- Logistic regression analysis was used to identify predictors of moderate-to-high SYNTAX scores. Odds ratios (OR) and confidence intervals (CI) were calculated, with non-critical CAD as the reference.
    - In the unadjusted model, only LGI was used to predict CAD severity.
    - In the adjusted model, age, HbA1c, creatinine, and hypertension were included in multivariate logistic regression.
- Linear regression analysis was also performed to assess the relationship between LGI and CAD severity.
- Results were interpreted according to p-values, with $p < 0.05$ considered statistically significant.

Ethics Approval

The study was approved by the Non-Interventional Research Ethics Committee of Kırıkkale University Faculty of Medicine on May 22, 2024, with decision number 2024.05.19.