**Patient Factors Related to Misdiagnosis of ST-Elevation Myocardial Infarction as Non-ST-Elevation Myocardial Infarction**

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**ABSTRACT [Maximum 300 words]**

**BACKGROUND:** Little is known about the misdiagnosis of ST-elevation myocardial infarction (STEMI). We investigated the incidence, relevant patient factors, and clinical consequences of the misdiagnosis of STEMI as non-STEMI (NSTEMI) in a real-world clinical setting.

**METHODS:** Out of 28,470 patients from the Korea Acute Myocardial Infarction Registry, 11,796 patients ultimately diagnosed with STEMI after a coronary angiogram were divided into two groups: patients who were correctly diagnosed with STEMI before the initial treatment strategy was established and patients who were initially misdiagnosed with NSTEMI.

**RESULTS:** Misdiagnosis of STEMI as NSTEMI occurred in 1.4% (165/11,796) of the patients, and they had longer door-to-catheterization lab time (220 [66−1177] vs. 43 [31−58] minutes, P<0.001) that was five times that of the timely diagnosed group. In a multivariable adjustments model, previous heart failure, atypical chest pain, anemia, and symptom-to-door time ≥4 hours had significantly higher odds, whereas systolic blood pressure <100 mmHg and anterior ST-elevation or left bundle branch block on electrocardiogram had lower odds of STEMI misdiagnosis. For patients with culprit lesions in the left anterior descending artery (N=5838), the adjusted 1-year mortality risk for the misdiagnosis of STEMI was 1.84 (95% confidence interval, 1.01 to 3.38).

**CONCLUSIONS:** A history of heart failure, atypical chest pain, anemia, and late presentation are positively associated with STEMI misdiagnosis. In contrast, low blood pressure and anterior ST-elevation or left bundle branch block on electrocardiogram are negatively associated with STEMI misdiagnosis. Additional efforts are required for the timely diagnosis of STEMI, especially in patients suspected of acute left anterior descending artery occlusion. (Funded by the Korea Centers for Disease Control and Prevention)

KEYWORDS: Myocardial Infarction, ST-Elevation Myocardial Infarction, Diagnostic Errors [Maximum 4 Keywords]