

Effect of Sex on Neutrophil to Lymphocyte Ratio and Coronary Flow in ST-Elevation Myocardial Infarction Patients Undergoing Primary Percutaneous Coronary Intervention

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Background: Female patients show poorer outcomes after coronary interventions compared to males. This study aims to investigate the role of enhanced inflammatory response in female ST-elevation myocardial infarction (STEMI) patients in poor outcomes post primary percutaneous coronary intervention (PPCI).

Methods: This study included 120 STEMI patients who went to PPCI in two tertiary cardiac centers over 6 months. All STEMI patients who are eligible for PPCI are included. We excluded those who had previous coronary artery bypass grafting (CABG) with venous grafts, previous PCI with in-stent restenosis (ISR), and those who had signs of infection on admission. These are then divided into two groups according to sex (males and females). Impaired coronary flow (also known as no-reflow) is defined as a coronary TIMI (thrombolysis in myocardial infarction) flow less than 3 after PCI in the absence of mechanical coronary occlusion.

Results: The studied groups included 88 males and 32 females. The median age in females was higher than males (62 vs. 57.5 years respectively, $P = 0.005$). The prevalence of hypertension (34 vs. 21 patients, $P = 0.01$), non-insulin-dependent diabetes mellitus (NIDDM) (22 vs. 16 patients, $P = 0.01$) and smoking (61 vs. 0 patients, $P < 0.001$) was higher in male patients. The incidence of impaired coronary flow did not differ significantly between the two groups (10 males and six females, $P = 0.363$). The median neutrophil to lymphocyte (N/L) ratio showed to be non-significantly higher in females (5 in males vs. 6 in females, $P = 0.342$). However, the mean N/L ratio was significantly higher in female patients with impaired coronary flow compared to males (9.35 vs. 5.79, $P = 0.003$).

Conclusions: The enhanced inflammatory response in female STEMI patients may be responsible for poorer outcomes after PPCI. Larger-scale studies are required to define immune mechanisms as a potential target to improve outcomes in STEMI patients.

Keywords: Neutrophils; Lymphocytes; Coronary; Primary; Flow; TIMI; Ratio; Sex