Impact of an occluded culprit artery on the long-term prognosis of patients with non-ST-elevation myocardial infarction. could they be true STEMI-equivalents?

D I. Shin1; M H. Jung1; I J. Choi1; J S. Yu1; S M. Seo1; P J. Kim1; K Y. Chang1; K B. Seung1; Y. Ahn2
1Catholic University of Korea, Seoul, Korea, Republic of; 2Chonnam National University Hospital, Gwangju, Korea, Republic of

Background: Recent studies have suggested that a subset of patients with non-ST-elevation myocardial infarction (NSTEMI) who had occluded culprit arteries had worse outcomes compared to those with non-occluded culprit arteries. Therefore, they have been regarded as "STEMI-equivalents". We aimed to compare the clinical characteristics and the long-term prognosis between these "STEMI-equivalents" and STEMI patients.

Methods: A total 5025 patients with acute MI from 9 centers of 2 universities were retrospectively registered in COREA-AMI (COnvergent REgistry of catholic and chonnAm university for Acute MI) registry. Out of these, the patients who had a total occlusion (TIMI 0 or I) of "culprit" left anterior descending artery (LAD) on the baseline angiography were selected as study subjects. They were classified into two groups by initial electrocardiographic findings: the "NSTEMI" group (n=253) and the "STEMI" group (n=800). The clinical, angiographic findings and the incidences of adverse events including in-hospital death (IHD), cardiac death (CD), recurrent nonfatal MI (RMI), and target vessel revascularization (TVR) were compared between two groups. The median follow-up duration was 47.3 months (IQR 32.7–66.2). Results: Patients in the STEMI group were younger and had lower left ventricular ejection fraction (LVEF). The peak levels of CK-MB and cardiac troponin were significantly higher in the STEMI group. Meanwhile, the NSTEMI group had more complex angiographic lesions (B2/C), multi-vessel diseases, and smaller stent-diameter. The incidence of IHD was significantly higher in the STEMI group than in the NSTEMI group (4.1% vs 1.2%, p=0.027). In the multivariate logistic regression, age (adjusted HR 1.161, 95% CI [1.104-1.221], p=0.035), LVEF (0.938 [0.894-0.985], p=0.010), and peak level of troponin (1.102 [1.100-1.104], p<0.016) were revealed as the independent predictors for IHD. During the 48-month follow-up, however, CD (10.6% vs 9.1%), RMI (6.3% vs 7.9%), and TVR (4.5% vs 3.2%) occurred at similar rates in both groups (all p>0.05). Furthermore, in the 12-month landmark analysis, the risk of all adverse events was not significantly different between both groups beyond 12 months (p>0.05).

Conclusions: Patients with NSTEMI who had an occluded "culprit" LAD demonstrated the similar rates of adverse cardiovascular events during 48 months, compared to the patients with STEMI. These patients in the NSTEMI group may represent true "STEMI-equivalents". Thus, the precise early risk stratification followed by an early intervention should be considered for these high risk patients.