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Comparison between MGuard and Bare-Metal Stents in Patients with ST-Elevation Myocardial Infarction

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Background: The MGuard stent (bare metal stent wrapped externally with a polymer mesh sleeve) is designed to prevent distal embolization by reducing thrombus and plaque fragments released during and post percutaneous coronary intervention (PCI). The aim of this study was to compare the outcomes of the MGuard stent vs bare-metal stents (BMS) in the setting of primary PCI for STEMI.

Methods: A total of 275 patients (MGuard: 47 and BMS: 228) who underwent primary PCI in the setting of STEMI < 12 hours were enrolled in this single center registry. We evaluated TIMI flow grade, peak troponin T release, left ventricular ejection fraction before discharge and MACE (Cardiac death, MI, TLR, stent thrombosis) during 6 months follow-up. Patients with cardiogenic shock were excluded.

Results: TIMI flow grade 2-3 was achieved during PCI with MGuard stent in 95.7% of patients vs 91.1% in BMS group (p=0.2). Improvement from initial to post-procedural TIMI flow grade \geq 2 points was higher in the MGuard group than in BMS, 68.1% vs 48.2% respectively (p=0.026). Peak release of troponin T at 48 hours was similar in two groups, MGuard 4.38 ± 3.6 ng/ml vs BMS 4.59 ± 4.2 ng/ml (p=0.8). Severely reduced LV ejection fraction before discharge was detected in 10.5% of patients in MGuard group compared to 18.7% in BMS (p=0.06). MACE rates at 6 months in the MGuard and BMS groups were 8.5% vs 10.1% (p=0.7). The rates of TLR at 6 months were similar (MGuard: 8.5% vs BMS: 9.6%, p=0.85).

Conclusions: This registry shows that among STEMI patients undergoing primary PCI, there was a tendency for better post-procedural TIMI flow grade in group of the MGuard stent. Patients treated with the MGuard stent compared to BMS had similar clinical outcomes during 6 months follow-up. There was no difference in TLR rates between the MGuard stent and BMS. There is a need for a randomized trial to evaluate the efficacy and safety of the MGuard stent in STEMI.