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In-hospital Tele-ECG Triage and interventional cardiologist activation of the infarct team for STEMI patients can improve late clinical outcomes

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Background: Door-to-balloon time (D2BT) has been reduced significantly for patients with ST-segment elevation myocardial infarction (STEMI), whether this reduction can be translated into mortality or morbidity benefit is still a controversial issue. We conducted a before-and-after study to determine the impact of in-hospital tele-electrocardiography (ECG) triage and interventional cardiologist activation of the infarct team on D2BT and long-term clinical outcomes in STEMI patients undergoing primary percutaneous coronary intervention (PPCI).

Methods: A total of 272 consecutive patients with acute STEMI undergoing PPCI were enrolled including tele-ECG triage (102 patients) and conventional triage (170 patients). Major adverse cardiovascular and cerebral vascular events (MACCE), regarding death, recurrent nonfatal MI, nonfatal stroke, and angina-driven target vessel revascularization during a 3-year follow-up, were recorded.

Results: The median D2BT of the tele-ECG group was significantly shorter than control group (79 minutes vs 109 minutes, $p < 0.001$). Tele-ECG triage group had a higher percentage of reaching D2BT goal (< 90 minutes) (78% vs. 55%; $p < 0.001$). The MACCE rate was significantly lower in the Tele-ECG versus the control group (23.5% vs. 38.2%, $p=0.012$). Tele-ECG group had a lower mortality rate but not reached statistical significance (2% vs 5.9%, $p=0.102$). In multivariable Cox proportional hazards analyses, the implementation of tele-ECG triage ($HR=0.43$, $P=0.003$) and the presence of moderate or severe mitral regurgitation at presentation ($HR=1.87$, $P=0.029$) were discovered as independently associated with MACCE.

Conclusion: In-hospital tele-ECG triage and interventional cardiologist activation can not only shorten D2BT but decrease MACCE at 3-year follow-up for STEMI patients undergoing PPCI.

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