

Tele-ECG transmission to reduce the time for catheterization laboratory activation

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Background: This study evaluated the use of a smartphone application to facilitate communication between the emergency physician (EP) and the interventional cardiologist in order to minimize the time to cardiac catheterization laboratory (CCL) activation and time to percutaneous coronary intervention (PCI).

Methods: We retrospectively collected pertinent time-points in the management of patients diagnosed with ST-Elevation Myocardial Infarction (STEMI) in the emergency department and their outcome. The primary outcome was the reduction in the time from ECG interpretation to CCL activation after the implementation of a smartphone application. A total of 84 patients were enrolled. Patients' electrocardiography (ECG) were described by traditional verbal communication via telephone (group 1, n=40) and by additional smartphone transmission of ECG images to an interventional cardiologist (group 2, n=44). Relevant time-points were recorded for analysis.

Results: The time from ECG interpretation to CCL activation was reduced from 28.3 ± 4.1 in group 1 to 17.6 ± 2.3 min in group 2 ($p=0.03$). Similarly, the time from ECG interpretation to balloon inflation time

(D2B) decreased from 93.1 to 73.4 min ($p=0.025$). Comparing group 2 with group 1, the door to balloon (D2B) time improved to 90.4 ± 9.8 from 119.3 ± 16.3 min ($p=0.23$), the proportion of patients with a D2B time less than 90 min increased to 70.5% from 52.5% ($p=0.09$) and the mortality rate decreased to 2.2% from 12.5% ($p=0.07$).

Conclusion: The additional use of a smartphone application to transmit ECG information to interventional cardiologists by EPs facilitated communication and reduced the decision time to CCL activation and percutaneous intervention.

Biography

Chun Chieh Chao has completed his Medical Degree in 2000 from National Yang-Ming University and Master Degree from Critical and Emergency Care institute at Yang-Ming University, School of Medicine. He has speciality both in emergency and critical care, and serve as the Director of 1st ICU and ED physician in Taipei medical University Hospital. He has published several articles about ECG in reputed journals and has been serving as an Editorial Board Member for several journals. He also has attended annual congress of ESICM several times for reporting clinical researches.