

中文題目：如何經由持續品質促進方法成功建置高雄市到院前心電圖模式

英文題目：How to set up successful pre-hospital electrocardiogram model in Kaohsiung city via continuous quality improvement program?

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OBJECTIVE: Early reperfusion in the setting of an ST-elevation myocardial infarction (STEMI) is important to patients' outcomes. Previous studies have shown that reporting or transmitting prehospital ECG to the emergency department is an important part of treatment for patients with STEMI. The main benefit of prehospital ECG is its potential to reduce reperfusion time. Furthermore, prehospital ECG enhances early arrival and triage to the emergency department, which is associated with increased use of reperfusion interventions and shortened time to treatment. However, it remained a challenging issue to set up prehospital ECG in Taiwan. Therefore, we investigated how to set up pre-hospital electrocardiogram system in Kaohsiung city via continuous quality improvement program?

METHODS: A multidisciplinary team among Kaohsiung veterans Genreal hospital, fire bureau and department of health, Kaohsiung city government was organized since Sep, 2011. The key interventions include to establish prehospital automatic interpretation ECG system with immediate ECG transmission over mobile networks, to design a ECG exam accessory device, to set up a incentive and auditing system, to arrange EMT educational program and to set up a standard operative procedure with transfer to appropriate hospital. The consecutive chest pain patients received ambulance ECG exam were enrolled from Jan. 2011 to Feb. 2013 in 6 different fire brigades at Kaohsiung city. The patients were divided into three group: pre-interventional group from Jan to Dec 2011, Interventional group from Jan 2012 to Feb 2013 and post-interventional group from March 2013 to Feb 2014. The ECG implementation rate is defined as chest pain patients received ambulance ECG exam divided by all patients with chest pain.

RESULTS: We developed a ECG exam accessory device, which could shorten ECG exam from 252 seconds to 30 seconds. The number of monthly chest pain patients received ambulance. The ECG implementation rate increased from 0% in pre-interventional group, to 0.6% in interventional group to 33.6% in post-interventional group ($p < 0.001$). Total 14 patients with STEMI was detected in 175 chest pain patients received ambulance ECG exam. In these STEMI patients, average door to balloon time was 53.5 minutes, average ischemia to balloon time was 111 minutes and in-hospital mortality was 0%.

CONCLUSIONS: The key factor to establish pre-hospital ECG system in Kaohsiung city is cooperation of hospital, fire bureau and department of health of government. Furthermore, comprehensive EMT education program and development of a ECG exam accessory device were also critical to set up the pre-hospital ECG system.