

中文題目：運用 AMISTAD 系統改善 ST 上升急性心肌梗塞病人治療時效

英文題目：A Study on Improving the Treatment Time Effectiveness of ST-elevation Acute Myocardial Infarction Patients with AMISTAD System

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## **Background and purpose**

ST segment elevation myocardial infarction (STEMI) causes a high risk of morbidity and mortality; the prognosis is highly associated with the reperfusion time of obstructed coronary artery. AMISTAD (Acute Myocardial Infarction Software Technology-Aids Decision) which can work on a smartphone and connect the multidisciplinary medical staff is a digital system to activate the procedure of primary percutaneous coronary intervention (PCI). This study aimed to investigate the impact of AMISATD on STEMI patients regarding the door-to-balloon time, i.e. reperfusion time, length of hospitalization, and risk of recurrent myocardial infarction.

## **Materials and Methods**

The study retrospectively collected the STEMI patients before and after AMISTAD from a medical center in south Taiwan from 1, July 2017 to 31, December 2018. Group 1 (1, July 2018 to 31, December 2018) was the patients receiving AMISTAD, while group 2 (1, July 2017 to 31, December 2017) and group 3 (1, January 2018 to 30, June 2018) were those without AMISTAD. The baseline characteristics of patients, all time points before door-to-balloon, length of hospitalization, and recurrent myocardial infarction events within one year were collected from the electronic health records. The outcomes were to compare the each time interval before door-to-balloon, the length of hospitalization, and the risk of one-year recurrent myocardial infarction.

## **Results**

There were 40 STEMI patients in the group 1, while the group 2 and 3 individually had 43 patients. The baseline characteristics between the groups did not differ significantly. After multivariate adjustment, the group 1 had significantly shorter time intervals of STEMI on electrocardiogram confirmation ( $5.5 \pm 3.9$ ,  $9.9 \pm 6.7$ ,  $8.7 \pm 7.8$  minutes,  $p < 0.05$ ), catheterization strating time ( $11.4 \pm 8.2$ ,  $17.5 \pm 4.5$ ,  $15.9 \pm 3.8$

minutes,  $p < 0.05$ ) and door-to-balloon time ( $57.7 \pm 20.6$ ,  $72.1 \pm 15.1$ ,  $74.4 \pm 31$  minutes,  $p < 0.05$ ), comparing to the group 2 and 3. Length of hospitalization of the group 1 was significantly shorter than that of group 2 and 3 ( $4.1 \pm 2.3$ ,  $6.5 \pm 5.6$ ,  $6.2 \pm 5.9$  days,  $p < 0.05$ ). However, the risk of recurrent myocardial infarction within one year was not significantly different between the three groups.

### **Conclusions**

Our findings demonstrated that the STEMI patients who received the AMISTAD system to activate the primary PCI are associated with a shorter coronary reperfusion time and length of hospitalization. Further studies with larger sample size and longer follow-up are warranted to determine the causal relationship.

**Key words:** ST segment elevation myocardial Infarction, AMISTAD system, reperfusion time