

中文題目：在南台灣利用新一代警示系統於不同機構之間轉送到院以及病患直接到院之急性ST波段上升心肌梗塞之長期預後

英文題目：Inter-facility transfer versus direct hospital admission in long-term outcome in ST segment elevation myocardial infarction after primary percutaneous coronary intervention in Southern Taiwan with New Warning System

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Background: Inter-facility transfer from non-percutaneous coronary intervention (PCI) capable hospital for primary (PCI) in ST segment elevation myocardial infarction (STEMI) results in significant delay of treatment. However, little was known about clinical outcome in Southern Taiwan if patient experienced from inter-facility transfer.

Methods: From October 2013 to December 2016, 667 patients experienced STEMI and received primary PCI at our institution. The patients were divided into two groups according to either transfer from non-PCI capable hospitals (inter-facility transfer group) or directed hospital admission (non-transfer group). The group of Inter-facility transfer had 274 patients and directed hospital admission had 393 patients. The reason adapted patients after October 2013 was due to the “New Warning System” including directly telephone and message contact to our first line duty doctor immediately after non-PCI capable hospitals STEMI diagnosis was made with immediately medications such as dual anti-platelet therapy and anti-coagulation therapy. The first line duty doctors, second line duty doctors and duty technicians were all informed immediately after the STEMI diagnosis was made. The “New Warning System” had also been used in Southern Taiwan since 2013.

Results: Table 1 demonstrated the baseline characteristics of study patients. The general demographics between two groups were similar including age, sex and body mass index (BMI) without statistical significance. The comorbidities were also similar between two groups such as diabetes mellitus, current smoking status, hypertension, prior stroke, end stage renal disease (ESRD) on hemodialysis, dyslipidemia and heart failure (HF) without statistical differences except prior MI experiences more in direct-hospital admission group (5.6% vs. 2.2%, $p=0.032$). The severity of MI including arrival systolic blood pressure and Killip classification were also the same without statistically differences. The parameters of quality control in PCI center such as Door-to-balloon (DTB) time, reperfusion time, pain-to-ER time and pain to reperfusion time were also compared. Direct telephone or message contact before patient transfer may result in shortening of DTB time in inter-facility transfer group (56.32 ± 36.67 min vs 83.58 ± 61.10 min, $p<0.001$) but without shortening reperfusion time (18.50 ± 8.72 min vs 18.83 ± 9.07 min, $p=0.643$). But the majority differences were pain-to-ER time and pain-to-reperfusion time (286.40 ± 191.31 min vs. $173.30 \pm$

139.66 min, $p=0.001$) and (337.77 ± 298.12 min vs. 250.70 ± 164.14 min, $p=0.010$). Table 2 demonstrated angiographic characteristics of both groups. There was no significant difference in procedure time (40.94 ± 21.51 min vs. 39.65 ± 20.52 min, $p=0.443$). Angiographic characteristics were the same including pre-PCI TIMI flow, stenosis severity before PCI, minimal lumen diameter before PCI, post-PCI TIMI flow and the percentage of distal embolization. The use of drug-eluting stents (DES) was similar between groups (57.3% vs. 53.8%, $p=0.429$). The use of intra-aortic balloon pump (IABP) (18.2% vs. 18.8%, $p=0.919$) and the use of extra-corporeal-membranous oxygenation (ECMO) (2.9% vs. 4.1%, $p=0.529$) were also the same between group. Table 3 illustrated the long-term clinical outcome between transfer and non-transfer patient group. There was no statistically differences between two groups of post-PCI acute kidney injury (AKI), target vessel revascularization (TVR) and recurrent myocardial infarction (MI) (14.2% vs. 13.8%, $p=0.910$; 5.1% vs. 6.6%, $p=0.508$; 2.6% vs. 1.8%, $p=0.586$). The 30-day mortality including cardiovascular mortality and all-cause mortality had no statistically differences between transfer and non-transfer group (5.5% vs. 7.9%, $p=0.277$; 5.8% vs. 8.4%, $p=0.231$). But the 1-year mortality showed near significant difference with higher cardiovascular mortality in non-transfer group (10.7% vs. 6.2%, $p=0.052$) and significant higher all-cause mortality in non-transfer group (12.2% vs. 6.9%, $p=0.026$).

Conclusions: Our study showed that after “New Warning System” available in our institution, the inter-transfer patients with shortening of D2B time without significant pain to reperfusion time still have lower one-year cardiovascular mortality ($p=0.049$).