ST-Elevation Myocardial Infarction Patient Diversion – A KWC Model by Default
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Introduction
North Lantau Hospital (NLTH) in its early phase of service would not admit patients with ST-Elevation Myocardial Infarction (STEMI). Patient would be directed from NLTH Accident and Emergency Department (AED) to Princess Margaret Hospital (PMH). Routine primary percutaneous coronary intervention (PPCI) was offered to patients from 8am to 8pm, Monday to Friday. Patients would be directly transferred to Cardiac Intervention Centre (CIC) of PMH if PPCI was planned. Thrombolytic therapy would be the alternative treatment in other time slots if there is no contraindication. All patients were transferred to PMH after thrombolysis.

Objectives
The aim was to perform an audit on safety and effectiveness of protocol based treatment of STEMI patients attending NLTH AED.

Methodology
From 1 Oct 2013 to 31 Dec 2014, 30 episodes of STEMI were identified. Data including patient's demographics, cardiovascular risk factors, pre-PCI status, method of reperfusion and door-to-balloon (DTB) time were collected. The DTB was compared with 2012 PPCI data where patients were admitted through PMH AED.

Result
Twenty-three males and 6 females of age 57+/-10.6 presented with 30 episodes of STEMI. Seventeen were anterior and 13 inferior MI. Coexisting cardiovascular risk factors were hypertension (35%), diabetes mellitus (38%), any history of smoking
(52%) and hyperlipidemia (79%). Prior MI, PCI and stroke were found in 10%, 3.5% and 10% of patients respectively. Twenty-four (80%) episodes were in Killip class I or had no frank heart failure. The median onset-to-AED time was 99 minutes. Thirteen patients received thrombolytic therapy. The median door-to-needle time was 30 minutes. Two rescue and 7 urgent PCI were performed after thrombolytic therapy. Fifteen received emergency trans-radial PPCI and all survived the episode. All 15 patients received thrombus suction and 14 intracoronary glycoprotein IIbIIIa receptor inhibitor. Eleven out of 26 patients with coronary angiogram performed showed single vessel disease. There were 3 (10%) in-hospital deaths. One patient died in PMH before transferring to CIC, another died of intracranial hemorrhage and the third was planned for comfort care. Three patients were tourists who developed MI at Hong Kong International Airport. The median DTB time and AED-to-CIC time was 130 and 109 minutes respectively. The corresponding 2012 data where STEMI patients were admitted through PMH AED was 138 minutes (P=0.86, Mann-Whitney test) and 110 minutes respectively. The crude in-hospital STEMI case fatality rate was below Hospital Authority average. Patients admitted through PMH AED and those transferred from NLTH AED had similar DTB and AED-to-CIC time. Possible explanations were engagement of PMH CIC during office hours and much higher patient load in PMH AED. Protocol driven hybrid therapy for STEMI patients with immediate transfer to regional cardiac center appeared practical, safe and effective.