

PRE-HOSPITAL THROMBOLYSIS IN ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: A REMOTE BORNEO ISLAND EXPERIENCE



S.M Razaman¹, M.A Mudin¹, N Wahab¹, M.H Hanifah¹

¹ Emergency and Trauma Department, Labuan Hospital, Federal Territory of Labuan, Malaysia

INTRODUCTION

ST-Elevation Myocardial Infarction (STEMI) is a major cause of death-rate in Malaysia. Rapid identification of STEMI and immediate administration of reperfusion therapy such as Primary Percutaneous Coronary Intervention (PCI) and Fibrinolytic Therapy are fundamental as the time lost is equal to myocardium loss. Pre-Hospital Thrombolysis (PHT) is a rapid treatment option that may save time for STEMI patients and associated with excellent morbidity and mortality outcomes. We are sharing our first case of STEMI patient receiving PHT in Labuan.

CASE PRESENTATION

A 45 years old gentleman presented with dizziness and vomiting while working at 11am. He went to the clinic and was detected with inferior STEMI (KILLIP 1) hence ambulance service was contacted. Upon ambulance arrival, he is still symptomatic, and vital signs were stable. He was administered with Aspirin and the 12-lead ECG was transmitted to the Emergency Department (ED) for Emergency Physician validation. IV Tenecteplase 6000 unit/30mg was administered 9 minutes from ambulance arrival at the clinic, during transportation to ED. On arrival to the ED, the symptoms resolved with complete resolution of ECG changes. He made a full recovery to hospital discharge five days later with no adverse events.

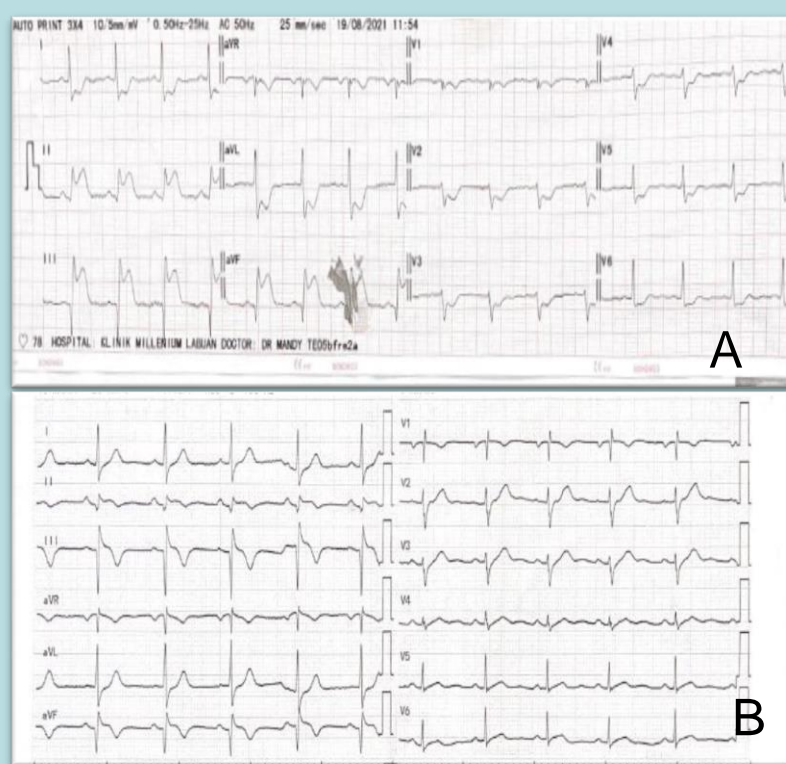


Figure 1: (A) Pre-thrombolysis ECG
(B) 90 minutes post-thrombolysis ECG

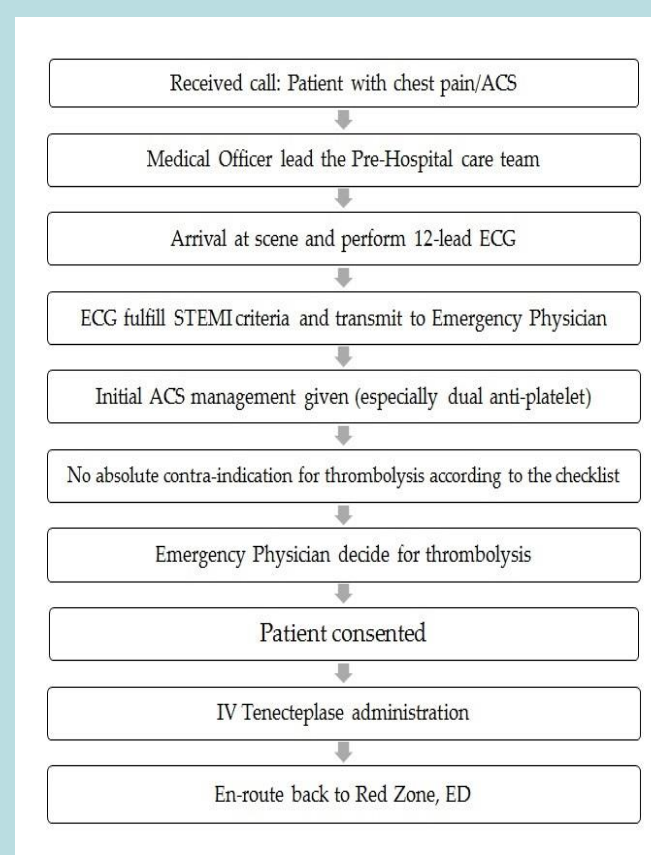


Figure 2: Work process of Pre-Hospital Thrombolysis

STEMI PATIENT RECEIVING THROMBOLYTIC THERAPY FORM
PRE HOSPITAL CARE & AMBULANCE SERVICE (PHCAS)
HOSPITAL LABUAN

DATE: _____ FULL DIAGNOSIS: _____
 PATIENT NAME: _____
 ID NO: _____ CITIZENSHIP: MALAYSIAN / NON-MALAYSIAN
 GENDER: MALE / FEMALE AGE (YEARS): _____ BODY WEIGHT (KG): _____

ABSOLUTE CONTRAINDICATION FOR THROMBOLYSIS CHECKLIST
(Ref: 2017 ESC Guidelines for Acute STEMI)

	YES	NO
Previous intracranial hemorrhage at anytime		
Ischaemic stroke in the preceding 6 months		
Known to have CNS neoplasm or AVM		
Recent major trauma/surgery/head injury (within the preceding month)		
History of GI bleeding within the past month		
Known bleeding disorder (excluding menses)		
Suspected aortic dissection		
Non-compressible punctures in the past 24 hours (eg. liver biopsy/lumbar puncture)		

MEDICATIONS GIVEN:
 Tab. Aspirin 300mg
 Tab. Clopidogrel 300mg
 S/L GTN 0.5mg (Total given: _____ mg)
 IV Morphine (Total given: _____ mg)
 Others: _____

IV TENECTEPLASE GIVEN:
 30mg (5ml) if <60kg
 35mg (7ml) if 60 to <70kg
 40mg (8ml) if 70 to <80kg
 45mg (9ml) if 80 to <90kg
 50mg (10ml) if >90kg

VITALS SIGNS:

TIME	BP	PR	SPO2	RR	PS

COMPLICATIONS:
 Mild bleeding (eg. gum, IV sites)
 Severe bleeding (eg. ICB, UGI/B)
 Hypotension
 Allergic reactions
 Others: _____

Time of arrival at scene: _____
Time of ECG done: _____
Time of thrombolytic given: _____
EP consulted: _____
Case managed by: _____
Signature: _____

Figure 3: Pre-hospital STEMI form

DISCUSSION

STEMI is a life-threatening and time-sensitive condition that requires prompt recognition and assessment. Late presentation, misdiagnosis and delay of perfusion leads to high mortality in Malaysia. Pre-hospital care can be of immense significance in reduce these. Primary PCI and thrombolysis are important treatments for restoration of coronary flow instantly. The antiplatelet agent such as aspirin act as adjunctive therapy should be given in the pre-hospital setting when STEMI is suspected. PHT reduces time to thrombolytic treatment and in-hospital mortality by 2% per hour of earlier treatment if safely and appropriately delivered by trained paramedics/doctors. Additionally, PHT for STEMI have possibilities to lower the morbidity, especially in patients has restricted access to PCI facilities. The further a STEMI patient is from hospital, the greater the potential benefit of PHT.

CONCLUSION

PHT for STEMI is both feasible and safe when administered by well-equipped and well-trained Pre-Hospital Care staff and significantly reduces reperfusion times and mortality.

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DR SITI MUSTAJAR
Email :
stmustajar@gmail.com



MHD AIZUDDIN
Email :
Dz.nuhha@gmail.com