

Can paramedics safely transport patients with ST-segment elevation myocardial infarction (STEMI) directly to a PCI-capable centre? Hayman K¹, McLeod SL¹, Allegretti M², Dukelow A^{1,3}, Lewell M^{1,3}

Introduction

 The local "CODE STEMI" protocol involves early identification of STEMI patients via electronic interpretation of pre-hospital ECGs (pECG), pre-hospital contact with the interventional cardiologist, and direct transport to a PCIcapable center, often bypassing emergency departments (ED) in non-PCI capable centres

Objective

 To determine if paramedics can safely transport STEMI patients in a single municipality

Primary Outcome

A composite of adverse events (AEs) occurring during transport, including cardiac arrest, hemodynamic instability, respiratory distress, decrease in level of consciousness, and need for diversion to the nearest hospital

Secondary Outcome

Intervention by the paramedic

Methods

- This was a retrospective review of all EMS-transported CODE STEMI patients in 2010
- Patient demographics, vital signs, time intervals, and EMS training level were extracted into a study-specific Excel database
- Pre-defined AEs and pre-hospital interventions were also recorded in the database
- Patients were included if a STEMI was identified in the field
- Patients were excluded if there was no pECG, the pECG was non-diagnostic (including LBBB), if hemodynamic instability precluded CODE STEMI activation, or if the ambulance call report (ACR) was unavailable

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All interventions were provided

by advanced care paramedics

25 (31.2%) patients were transported by primary care paramedics

Charts Reviewed N = 120

Excluded n = 40Non-diagnostic pECG: No STEMI n = 14False negative n = 3LBBB n = 2

Unstable, not activated n = 8

ACR unavailable n = 7

Alternate complaint and no pECG n = 5

Chest pain and no pECG n = 1

Included in Analysis n = 80

> No Adverse Event n = 54

Figure 1. Flow diagram of retrospective findings

Hypotens SBP drop Bradycard Tachycard Decrease Cardiac a Diversior

> * One patient required conversion of rapid atrial flutter by the **ED** physician before PCI

> > Figure 2. Median (IQR) pertinent time intervals

Conclusions



Table 1. A summary of AEs. 26 (32.5%) patients experienced a total of 31 AEs during assessment and transport

Adverse Events	Number
sion (SBP < 90 mmHg)	13
o of > 30% without hypotension	5
dia (< 50 bpm)	7
dia (> 120 bpm) *	4
e in GCS	2
arrest	0
n to nearest hospital	0

EMS contact-to-balloon time Median = $66.5 \min(58, 78.8)$

pECG-to-hospital arrival time Median = $21 \min(15, 24)$

> **Drive time** Median = $9 \min 2$ (7, 13.5)

 A significant number of EMS-activated CODE STEMI patients experienced an AE during paramedic assessment and transport

The number of interventions was low and no patients died

The overall transport time was very short

 Further study is required for protocols allowing longer transport times to PCI-capable centres