

AVERAGE TIME FOR PRESENTATION TO THE EMERGENCY AND TREATMENT WITH STREPTOKINASE IN PATIENTS PRESENTING TO CARDIAC SERVICES IN LOCAL DHQ

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Contribution

AU conceived, designed and did statistical analysis & manuscript writing. MUH did data collection and manuscript writing. SBK did review and final approval of manuscript

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ABSTRACT

Objective: To determine the door to needle time for acute ST Elevation MI patients at Kohat

Methodology: It was a cross-sectional study carried out at Cardiology department of KMU institute of medical sciences District Head Quarter Tehsil Hospital KDA Kohat. Patients with ST elevation MI were included in the study. Door to needle time was established for all.

Results: Total of 100 patients were included in the study. Door to needle time was 30 ± 5 minutes. Mean distance from facility was 34 Kilometers; however chest pain to ER time was highly variable with minimum 177 minutes for AWMI to 480 minutes for inferolateral STEMI. Female patients encountered a delay of 239 minutes versus 172 minutes delay in males presenting to emergency care unit. Out of total 10 deaths 9 occurred in those patients who came to emergency after 45 minutes of onset of chest pain.

Conclusion: There is a high variability in time of presentation to emergency unit from onset of chest pain; however door to needle time is well within 30 minutes of patient arrival. Time from onset of chest pain to presentation in the emergency room was more for the female patients.

Key Words: STEMI, Door-to-needle, Thrombolysis

INTRODUCTION

Chest pain is a very common reason for patients consulting a doctor. ST segment is the prime concern of emergency staff while reading an ECG of the patient with chest pain. Partial depolarization of injured myocytes is the cause of elevation of ST segment. Missing this dreadful diagnosis can lead to disastrous consequences for the patient health.¹ The factors that lead to delay in presentation of a patient with chest pain might be related to gender of the patient and other factors like atypical presenting symptoms or distance from the health facility.² Time to reperfusion is amongst one of the most important variables that determine mortality in patients presenting with ST elevation myocardial infarction & the one most readily modifiable & is an area of concern.³

Our current study is aimed at finding out how much time our own patient take to reach the emergency, efficient delivery of prompt thrombolytic therapy along with other standard therapy to patients with STEMI. Finding out strategies to overcome delays in treatment is the main step in improving health care to STEMI patients.⁴

METHODOLOGY

The current study was conducted in Cardiology department DHQTH KDA Kohat. We studied patients with STEMI who were well in time for thrombolystic therapy administration. The study spanned over 6 months period from 1st July to 31st December 2017. All patients with chest pain diagnosed as STEMI based on the definition used in the universal definition of myocardial infarction. All STEMI patients who were outside the time window of administration of thrombolysis and who had contraindication for

thrombolytics were excluded from study. Our study was a descriptive cross sectional study. A detailed history of patient was taken. A detailed 2-D and Doppler echocardiographic examination was performed in each patient before the discharge. Patient of all ages from both genders presenting with typical chest pain lasting for more than 30 minutes with typical evolutionary ECG changes of acute ST segment elevation myocardial infarction were studied. Patients without typical chest pain and significant ST-elevation were recruited in the study. In addition Troponin T and rise in CK.MB level were considered as diagnostic of acute myocardial infarction.

RESULTS

Our patient population was in the age range between 30 to 85 years, 28 patients between 30 to 50 years of age, 49 patients between 51 to 60 years and 23 patients between 61 to 85 years of age. Out of 100 patients, 29 were females & 71 were male patients. The average distance from the facility was 34 km for the patients presenting to the cardiology unit of DHQ KDA Kohat. About 67 patients belonged to the locality within 30 kilometer radius of the hospital, while 33 were from distance more than 30 Km from the hospital. Majority of the patients were having inferior wall MI i.e 33, followed by 31 Anterolateral MI, 25 Anterior wall MI, 02 Lateral wall MI and 01 Inferolateral MI. Only 1 out of patients died among 54 of those presenting within 45 minutes of chest pain to cardiology unit while 9 deaths occurred among the 46 patients presenting after 45 minutes as shown in tables 1 and 2. All of our patients received thrombolysis within 30 minutes of arrival to emergency department.

Table 1: Time to Presentation in Emergency Cardiac Services & Mortality (n=100)

Time limit	Total deaths	Total alive
≤45 minutes	1	53
>45 minutes	9	37
Grand total	100	

Table 2: Time from Chest Pain to Emergency Department Arrival

Time from symptom onset	Frequency of patients (Total 100 patients)
30 minutes	14
40 minutes to 1 hour	28
1 -2 hours	11
2 -6 hours	43
6 -12 hours	04

DISCUSSION

Time delays worsen the prognosis in the STEMI patients. It is very important that time delays in reporting to the emergency cardiac services is minimized. Both the mortality & morbidity reduction can be achieved through immediate recognition of cardiac symptomatology by the patient or his attendants, so that patient is brought immediately to the hospital. Such a goal can only be achieved through proper health education of masses. Time delay is directly related to the myocardium loss in the patient. It is generally accepted that primary angioplasty is the preferred mode of reperfusion, and the cutoff limit for door to balloon time of 90 minutes is the time window to attain the goal of saving the myocardium from permanent damage. Availability of primary angioplasty facility is the main factor in such situations.⁵⁻¹⁴ Successful resolution of thrombosis by thrombolytic in the STEMI which cease to work at the time limit of 20 min. So, the interval from the onset of symptoms occupies a vital place in the management of STEMI. Availability of thrombolysis in emergency department in the places where angiography & angioplasty facility is not available, makes it the only line of treatment. Reperfusion in first hour decreases mortality by 6.5%, falling to 3.7% in second hour, 2.6% after 6 hours, and is ineffective after 12 hours.

In a recent study by Terkelsen et al analyzed data over 4000 hospitals. It showed that only 27% patients were thrombolysed in less than 30min while 32% in <90min. A meta-analysis from Nallamothu et al suggests that if there was a delay of more than 60min for PCI, thrombolysis should be a preferred strategy.¹⁵⁻¹⁷

Canadian Registry(2000-2001) showed that 63% of patients with STEMI failed to be thrombolysed in <30min.¹⁸ Another Canadian study QUEBEC in 2003 showed median Door to needle time of 32 minutes in patients of STEMI.¹⁹ Studies from India in 2015 showed only 27% patients of STEMI being thrombolysed in less than 30mins.²⁰ In a study conducted in Punjab Institute of Cardiology, Lahore 46.2% patients with STEMI had DNT of >30mins.²¹ A study in Armed Forces Institute of Cardiology, Rawalpindi illustrated that 70% of their patients were thrombolysed in <30mins.²² Our results are comparable to this study and far better than the rest. In our study, we managed to thrombolysed 62.4% of our patients with STEMI in <30min, 27.1% in 30 – 60min and only 9% in >60mins. Previously a study conducted in 2010 in Lady Reading Hospital by Jabbar et al, 7.1% patients with STEMI were thrombolysed in less than 30min.²³ Whereas our study at Kohat indicates that our response in emergency department is much prompt, here our concern is delay on the part of patient.

In our study the major delay was on the part of patient, specifically found among the female patients who presented later than the average time for presentation to cardiology

services. Time delay for female patients was almost double the time delay for presentation by the male patients. Unfortunately there was no EMS service for bringing patients from home & all the patients were arriving in rented or personal transport. Distance was not the major factor in deciding for the patient delays in our study as majority of our patients were within 30 km of the cardiac facility. This area of care is most point of concern as in a study from US where only 28% patients were presenting in time window of 2 to 6 hours, as compared to alarmingly high in our study i.e., 43% in our study.²⁴

CONCLUSION

More the delay from first medical encounter to needle or revascularization, more are the chances of adverse events. Therefore proper education and facilities are needed for the in time management of these patients.

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