ST elevation myocardial infarction: An Experience at Lady Reading Hospital Peshawar

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Abstract

Objective: To know the clinical characteristics, treatment offered and outcome of patients with STEMI admitted to cardiology unit LRH.

Methodology: This observational Retrospective study was conducted from First January to 31 December 2013 in cardiology unit Lady Reading Hospital Peshawar. All the patients admitted with suspected coronary artery disease were included in the study.

Results: A total of 6510 patients admitted to cardiology unit LRH during year 2013 were Analyzed. Of all these 3766(57.85%) patients were admitted with coronary artery disease. Patients admitted with ST elevation myocardial infarction were 1733 (46.02% of total CAD admission). Of all these patients with STEMI, Fibrinolytic therapy with streptokinase were given to 1380(79.6%) patients, while 343(19.8%) were late for fibrinolytic therapy or having some contraindication to fibrinolytic therapy. Of all these patients, Males were 1085 (62.60%), Female were 648 (37.40%), Mean age was 57.42 years±8.7 SD, Diabetes was found in 458(26.39%), Hypertension in 679(39.18%), Smokers were 183(10.5%), Family history of CAD was found in 205(11.82%), while Past history was significant for CAD in 305(17.5%) patients and Anterior wall MI & New onset LBBB was found in 790(45%). In hospital mortality was 158(9.1%).

Conclusion: About 46 % of patients admitted with CAD were havig STEMI, of them 80% receive Streptokinase while only 5.4% were subjected to Primary or rescue PCI. The inhospital mortality is about 9%. Anterior wall MI was the most frequent MI.

Key Words: Coronary artery disease, Streptokinase, Myocardial infarction

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Introduction: Acute myocardial infarction (AMI) is an important cause of morbidity and mortality in the developing world.[1] There are Certain risk factors which predisposes to AMI which are categorized as modifiable (Hypertension, diabetes, high blood cholesterol, smoking, physical inactivity and obesity) and non-modifiable (age, sex and family history of heart disease).[1] Significant differences in the prevalence of coronary artery disease exist with respect to gender, age and ethnicity. cardiovascular risk factors for ischaemic heart disease and acute myocardial infarction are on the rise in developing countries like Pakistan and is now the leading cause of death in the Indo-Pakistan subcontinent.[2, 3] STEMI is not only an important public health problem in industrialized countries but is also becoming an increasingly significant problem in developing countries.[4] There are estimated 500 000 STEMI events per year in the U.S. [5,6] Advances in reperfusion therapy for ST elevation myocardial infarction provide optimal patient outcomes. Reperfusion therapies include primary percutaneous coronary intervention and

thrombolysis and rarely CABG.[7] we conduct this observational study here in Peshawar in order to known about the risk factors, treatment given and mortality from ST elevation myocardial infarction in our local population.

Methodology: This Retrospective observational study was conducted from First January to 31 December 2013 in cardiology unit Lady Reading Hospital Peshawar. All 1733 consecutive cases presenting with typical electrocardiographic changes of acute ST Elevation Myocardial Infarction were recruited. STEMI was defined as clinical presentation with chest pain > 20 minutes and ST elevation of more than 1mm in at least 2 contiguous leads or new onset left bundle branch block on 12 lead ECG. We recorded the demographic data including age, gender, anthropometric measures and the following independent variables of the patients in a predefined performa. The traditional cardiovascular risk factors (smoking, hypertension, and diabetes mellitus) were noted. The two modes of presentations (typical- chest pain, sweating and atypical- epigastric/neck/shoulder pain, painless) and duration of symptoms onset (0-6, 6-12, 12-24 and > 24 hours) were documented. Clinically the patients were categorized into having normal physical examination and signs of Left Ventricle Failure (S3/gallop rhythm and basal crackles). The regions of infarction (anterior, inferior and combination), rhythm disturbances (sinus vs. atrioventricular block) were also documented. Statistical analyses were performed by the use of a commercial software package. Descriptive analysis was mainly used. Treatment given in form of thrombolytic therapy or Primary/Rescue PCI were recorded.

Results: A total of 6510 patients admitted to cardiology unit LRH during year 2013 were included in the study. Of all these 3766(57.85%) patients were admitted with coronary artery disease. Patients admitted with ST elevation myocardial infarction were 1733 (46.02% of total CAD admission). Of all these patients with STEMI, Fibrinolytic therapy with streptokinase were given to 1380(79.6%) patients, while 343(19.8%) were late for fibrinolytic therapy or having some contraindication to fibrinolytic therapy as shown in table 3. Of all these patients, Males were 1085 (62.60%), Female were 648 (37.40%), Mean age was 57.42 years±8.7 SD, Diabetes was found in 458(26.39%), Hypertension in 679(39.18%), Smokers were 183(10.5%), Family history of CAD was documented in 205(11.82%), while Past history was significant for CAD in 305(17.5%) patients and in hospital mortality was 158(9.1%). These are shown in table 1. Atrial fibrillation occur in 108(6.28%). Ventricular arrhythmia occur in 276(15.9%). 179(10.30%) developed signs and symptoms of acute heart failure. Transient AV block not requiring permanent pacing occur in 73(4.2%). patients. Of all the STEMI, Anterior wall MI & New onset LBBB was documented in 790(45.58%), Anterior+inferior wall MI in 127(7.3%), Isolated inferior wall MI in 334(19.27%), Inferolateral wall STEMI in 153(8.82%), Inferoposterior wall STEMI in 190(10.96%), Inferior+ RV MI in 86(4.96%) and High lateral wall STEMI in 53(3.05%) as shown in table 2. The survival till hospital discharge was 1575(90.9%).

Table 1: Baseline characteristics of Patients with STEMI

Variables	Number	Percentages

Age	57.42 ±8.7 years	
Male	1085	62.6%
Female	648	37.4%
Hypertension	679	39.18%
Diabetes	458	26.39%
Smokers	183	10.5%
Family History of CAD	205	11.82%
Past History of CAD	305	17.5%

Table 2: Territory involvement in STEMI on ECG

Type of STEMI	Total	Numbers
Anterior wall MI & New onset LBBB	790	45.58%
Anterior+inferior wall MI	127	7.3%
Isolated inferior wall MI	334	19.27%
Inferolateral wall STEMI	153	8.82%
Inferoposterior wall STEMI	190	10.96%
Inferior+ RV MI	86	4.96%
High lateral wall STEMI	53	3.05%

Table 3: Fibrinolytic therapy and Primary PCI offered to patients

Variables	Number of patients	Percentages
Streptokinase1480 (85.4%)	1380	79.6 %
Contraindication/Late to fibrinolytic therapy	343	19.8%
Primary/Rescue PCI	94	5.36%

Discussion: This was an observational study which included all the patient admitted with in cardiology care during year 2013. The total patients were 1733 which form the 46% of the admission of the coronary artery disease patients in Cardiology unit LRH. About 80% of patients received the thrombolytic therapy while about 5.4% of patients either undergone the primary or rescue PCI. Median hospital stay was 2.8±1.9 days. We compare our study with a study done at agha khan hospital Karachi which shows that age and risk factor profiles were same.[8] Median hospital stay in our series was shorter, it was 2.8±1.9 days as compare to that in AKU hospital.4.0(3.5-6.0) days. Also mean hospital stay were shorter from that observerd in European countries which is 7.0 (5.0-10) Days.[9] Survival at hospital discharge was also similar between both groups, i,e 90.9% as compare to that in AKU cohort which was 91.9% for the AKUH.[8] also it was less as compare to European Registry were there cohort survival was 93.1% for European patients. The majority of patients in both groups were characterized as being in Killip class 1 on presentation, since they had no evidence of heart failure or cardiogenic shock on arrival.

In our sudy about 80% received fibrinolytic therapy whereas the throbolytic therapy received in AKU hospital were only in 5% of patient but there study population during the whole year was less than 300number as compre to our study cohort of more than 1700 patients per annum.[8] Similarly About a third of European patients with STEMI received fibrinoltyic therapy.[9] On otherhand only 5.4% of our patients with acute STEMI received PCI as compare to 88.4% in aku hospital and 52.3% in European patients. Again the reason is because of huge burden here in our unit and lack of primary or rescue PCI facilities. [8,9] Around 5.4 % (4.8% for Europeans) patients were treated medically and did not receive reperfusion therapy mostly due to late arrival and completed infarcts. Similary the late presentation or contraindication for fibrinolytic therapy was about 19% mainly because of high illiteracy and lack of emergency services to reach the hospital in time in this part of the world.[8,9] We have financial issues in our community. It is the major cause of delay it is the major cause of delay in primary PCI in the country. In the Indian series 58.8% of patients presented later than 4 hours after symptom onset.[10] Jafary et al from the AKU center had reported a mean 4.5 hour delay between symptoms and hospital arrival for patients undergoing primary PCI and 90 minutes for those undergoing thrombolysis.[11, 12] Reasons for delay in presentation by the patient may include lack of awareness as to the significance of symptoms, lack of transport facilities, financial difficulties, and even inaccurate initial diagnosis. In a society where majority of patients do not have access to health insurance, there may be a combination of reasons. Similar to our findings, Xavier et al had reported government or insurance payment in 12.8% of patients with STEMI in India.[10] Diabetes was present in around 26% of our patients, which is similar to data from India, reported by Xavier et al and also in the study from Karachi.[8,10] Jafary et al, also found prevalence of diabetes to be 41.7% and 32.1% in patients with STEMI undergoing fibrinolysis and primary PCI respectively.[11,12]

Conclusion: About 46 % of patients admitted with CAD were having STEMI, of them 80% receive Streptokinase while only 5.4% were subjected to Primary or rescue PCI. The in hospital mortality is about 9%. Anterior wall MI was the most frequent MI.

References:

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