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ACUTE CORONARY SYNDROME: AN EXPERIENCE AT LADY READING HOSPITAL PESHAWAR

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Contribution

MI, SZ conceived the idea, planned the study and drafted the manuscript. MH, HJ & JZ collected data, did statical analysis, drafted the manuscript and critically reviewed manuscript. All authors contributed significantly to the submitted manuscript.

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ABSTRACT

Objective: To know the clinical characteristics, treatment given and in hospital outcome of the patients admitted to Cardiology Unit LRH with acute coronary syndrome.

Methodology: This cross sectional study was conducted from 1st January to 31st December 2013 in Cardiology Unit Lady Reading Hospital Peshawar. All the patients admitted with suspected coronary artery disease were included in the study. Risk factors (smoking, hypertension, and diabetes mellitus), infarct territory (anterior, inferior and combination), rhythm disturbances (sinus vs. atrio-ventricular block), treatment offered and in hospital outcome were documented. Data was analyzed by SPSS version 17.

Results: Total number of patients admitted with acute coronary syndrome was 2033.Of them, NSTEMI (Troponin T positive) were 24%. Of all the patients with NSTEMI, males were 53.20%, Mean age was 62.43±7.8 years. Diabetes was documented in 37.47%, hypertension in 42.4%, family history of coronary artery disease (CAD) was present in 13.2%, past history of CAD was present in 24.84% of patients while smokers were 12.62%. New onset AF was found in 8.07% of patients. Unstable angina was documented in 76% of ACS patients with mean age of 61.12 ± 9.3 years. About 32.12% were diabetics , 38.32% were hypertensive , smokers 11.87%, positive family history of CAD in 11.80% while past history of CAD was present in 19.48% of patients. Acute pulmonary edema occurred in 10.5% patients, cardiogenic shock in 5.17% and ventricular arrhythmia occurred in 8.4% of NSTEMI patients while acute pulmonary edema, cardiogenic shock and ventricular arrhythmia occurred in1.3%, 0.7% and 2.9% respectively of unstable angina patients. In hospital mortality was 4.7 % in NSTEMI and 1.9% in unstable angina patients.

Conclusion: More than one third of the patients admitted with acute coronary syndrome had diabetes mellitus. New onset AF, ventricular arrhythmias and mortality was higher in the NSTEMI group than in the unstable angina.

Key Words: Coronary artery disease, Unstable angina, Diabetes mellitus.

INTRODUCTION

Coronary artery disease and its acute presentation in the form of acute coronary syndrome (ACS) is a well-known cause of death world-wide.[1] A number of conventional cardiovascular risk factors are known to cause coronary Artery Disease.[2] Conventional risk factors can be modified but other factors like age, gender, race and family history cannot be changed. These factors have different impact on male and female. In 1963, Keys A et al have done first study in pursuit of risk factors associated with coronary artery disease and since then much work has been done, Angina, the primary symptom of coronary artery disease, is typically experienced as chest pain.[3,4] Stable angina is predictable chest pain that can usually be managed with lifestyle changes and medications, such as low-dose aspirin and nitrates. Acute coronary syndrome (ACS) is a severe and sudden heart condition that, although needing aggressive treatment, has not developed into a full blown heart attack. ACS include unstable angina and NSTEMI. In unstable angina there is more frequent and worsening of chest pain as compare to stable angina but without increase in cardiac biomarkers. In NSTEMI (Non ST-segment Elevation Myocardial Infarction) which is also called non Q-wave myocardial infarction, is diagnosed when blood tests and ECGs indicate a heart attack that does not involve the full thickness of the heart muscle. The injury in the arteries is less severe than with a full-blown heart attack.

This study will highlight the burden of ACS in our setup so that provision of diagnostic point of care test for cardiac markers and anticoagulant injections can be made available.

METHODOLOGY

This cross sectional study was conducted from 1st January to 31st December 2013 in Cardiology unit Lady Reading Hospital Peshawar. Consecutive cases presenting with chest pain, sweating or apprehension suggestive of myocardial ischemia with ECG changes were included in the study. 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. Patients with first episode of non ST- segment elevation myocardial infarction irrespective of age and sex having ischemic symptoms lasting for at least 10 min within the previous 24 hours with ischemic ST-segment changes (ST-segment depression of at least 0.5 mm and/or T-wave inversion) and positive Troponin test (>.01ng/dl were included. Patients with ST elevation myocardial infarction were excluded.

NSTEMI (Non ST-segment elevation myocardial infarction) was defined as absence of ST-segment elevation consistent with MI of $\geqslant$ 2 mm in adjacent chest leads, ST-segment elevation of $\geqslant$1 mm in 2 or more standard leads, absence of new left bundle branch block and positive cardiac necrosis markers.

Unstable angina was defined as prolonged (more than 20 minutes) chest pain, absence of ST-segment elevation consistent with MI of $\geqslant$2 mm in adjacent chest leads and ST segment elevation of $\geqslant$1 mm in 2 or more standard leads, absence of new left bundle branch block and negative cardiac necrosis markers.

Angina Pectoris (or equivalent type of ischemic discomfort) with any one of the three following features:

a) angina occurring at rest and prolonged, more than 20 minutes, b) new-onset angina of at least CCS class III severity, or c) recent acceleration of angina reflected by an increase in severity of at least one CCS class to at least CCS class III.

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. atrio-ventricular block) were documented. Statistical analyses were performed by the use of SPSS 17 software. Frequency, percentages were used for all qualitative variables, e.g. gender myocardial infarction. All quantitative variables were illustrated as mean and standard deviation. Descriptive analysis was mainly used.

RESULTS

A total of 3766 patients were admitted to Cardiology unit LRH during year 2013 with coronary artery disease. Total number of patients with acute coronary syndrome was 2033(53.98%). Among them NSTEMI (Troponin T positive) was documented in 483(12.82%) and unstable angina with normal cardiac enzymes was present in 1550 (41.41%). Of all the patients with NSTEMI, males were 257(53.20%). Mean age of patients was 62.43 ±7.8 years. Diabetes was found in 181(37.47%), hypertension in 205(42.4%), About 61(12.62%) were smokers, family history of CAD was present in 64(13.2%) patients while past history of CAD was present in 120 (24.84%) (Table 1). Patients with Unstable angina had mean age of 61.12 ±9.3 years. Males were 1066 (68.77%). Diabetes was found in 498(32.12%), hypertension in 549(38.32%), family history of coronary artery disease was positive in 183(11.80%), past history of coronary artery disease in 302(19.48%) and 184(11.87%)

were smokers as shown in table 2. Most of NSTEMI and unstable angina patients were given aspirin, clopidogrel and low molecular weight heparin (Table 3 and 4). Acute pulmonary edema occurred in 10.5% patients, cardiogenic shock in 5.17% and ventricular arrhythmia in 8.4% of NSTEMI population while acute pulmonary edema occurred in 1.3%, cardiogenic shock in 0.7% and ventricular arrythmia in 2.9% in unstable angina patients. In hospital mortality was 4.7% in NSTEMI and 1.9% in unstable angina patients as shown in table 5 and 6.

Table 1: Demographic variables of Non ST Elevation Myocardial Infarction Patients (n=483)

Variables	Numbers (n)	Percentages (%)
Age (years)	62.43±7.8	
Males	257	53.20
Females	226	46.79
Hypertension	205	42.4
Diabetes mellitus	181	37.47
Smoking	61	12.62
Family history of CAD	64	13.2
Past history of CAD	120	24.84

Table 2: Demographic Variables of Unstable Angina Patients (n=l550)

Variables	Numbers (n)	Percentages (%)
Age (years)	61.12 ±9.3	
Males	1066	68.77%
Females	484	31.22%
Hypertension	549	38.32%
Diabetes mellitus	498	32.12%
Smoking	184	11.87%
Family history of CAD	183	11.8%
Past history of CAD	302	19.48%

Table 3: Medication/Interventions Offered To NSTEMI Patients (n=483)

Variables	Number (n)	Percentages (%)
Aspirin	479	99.1%
Clopidogrel	466	96.6%
Beta blockers	393	81.4%
Ace inhibitor	197	40.7%
Arbs	210	43.5%
Calcium channels blockers	108	22.3%
Nitrates	212	43.9%
Statins	471	97.5%
Enoxaparin	309	63.97%
Fondaparinux	112	23.1%
Angioplasty during index Hospitalization	43	8.9%

Table 4: Medication/Interventions Offered To Unstable angina Patients (n=1550)

Variables	Number (n)	Percentages (%)
Aspirin	1523	98.2%
Clopidogrel	1469	94.7%
Beta Blockers	1245	80.3%
Ace Inhibitor	921	59.4%
ARBS	432	27.9%
Calcium Channels Blockers	352	22.7%
Nitrates	1206	77.8%
Statins	1484	95.7%
Enoxaparin	963	62.1%
Fondaparinux	432	27.9%
Angioplasty During Index Hospitalization	87	5.6%

Table 5: Complication In NSTEMI Patients (n=483)

Variables	Numbers (n)	Percentages (%)
New Onset Atrial Fibrillation	39	8.07%
Ventricular Tachycardia/Fibrillation	41	8.4%
High Degree AV Block	19	3.93%
Acute Pulmonary Edema	51	10.5%
Cardiogenic Shock	25	5.17%
Acute Mitral Regurgitation	9	1.8%
Mortality	23	4.7%

Table 6: Complication in Unstable Angina Patients (n=1550)

Variables	Numbers (n)	Percentages (%)
New Onset Atrial Fibrillation	59	3.8%
Ventricular Tachycardia/Fibrillation	45	2.9%
Acute Pulmonary Edema	21	1.3%
Cardiogenic Shock	11	0.7%
Mortality	29	1.9%

DISCUSSION

This study was carried out in patient admitted with acute coronary syndrome having ECG changes that did not fit to STEMI. It was found in our study that majority of these patients were having unstable angina, i.e. that majority of patients had normal cardiac enzymes. But this condition was continuum from stable to unstable to NSTEMI. These patients were more frequently diabetic (32%) and hypertensive (38%). Also these patients had more frequently history of past coronary artery disease. About 11 % of these patients were smokers. So most of patients in our study were having conventional risk factors. In a study from Polish registry the initial diagnoses of unstable angina was present in 42.2%, while NSTEMI in 26.6% and 31.2% patients had STEMI diagnosis.[5]As compared to our study the NSTEMI ACS were more frequent in patients from Polish registry. In our study only 12% of patients with CAD had NSTEMI ACS. While the unstable angina was about the same as our study. In this registry, more than 40% of patients were initially diagnosed as having UA. Others were diagnosed as having MI, with slightly more STEMI (31%) than NSTEMI (27%). In GRACE & Euro Heart Survey having mostly European population, showed increased proportion of UA among ACS patients as compared to STEMI and NSTEMI population.[6,7] Most of the patients diagnosed with Unstable Angina might be because of the fact that in our population, these patients were not subjected to cardiac catheterization, meaning that

they may be over diagnosed because the criteria for UA was rather liberal and did not require ECG changes. In fact, the ECG abnormalities typical of ischemia were not present in some of the patients. However, these patients were managed on same grounds as UA patients with all the ensuing consequences.

In a study done in Peshawar which included only female patients presenting with ACS, they found that about 34.1% were diagnosed with STEMI, 23% with NSTEMI and 42.7% as UA which demonstrated that NSTEMI population was less as compared to UA and STEMI.[8] In our study half of the UA patients were females. In that study by AshrafA et,al. majority of female patients admitted to the hospital were older than 55 years of age, supporting our study. In our study the mean age in these patients was more than 60 years .[8] Similarly the conventional risk factors were also somewhat more in these population again supporting our findings. They also found that smokers were about 12% .In a study by Naz S et al. conducted in Lahore , mean age of patients with ACS was about 56.25±13.01 years similar to our study results. In a study from Karachi mean age was 60.39 years.[10] But in their study smoking was 29.2% and diabetes mellitus was 51.9% which was more as compare to our study.[10] The treatment offered to our ACS patients were about the same as documented in other similar studies performed in Pakistan. Majority of patients with ACS were given aspirin, clopidogrel, low molecular weight heparin and nitrates.[8-11] Less than 10% of patients were subjected to percutaneous coronary intervention during index hospitalization as in most of cardiac center in other areas of Pakistan. Trzeciak P et al. observed same demographic variables as in our study but in hospital mortality was markedly low [11]. Fath-Ordoubadi F et al also observed same sort of demographic and risk factor profile as in our study population.[12] They have performed early revascularization in majority of NSTEMI patients and demonstrated that NSTEMI with high risk features should be subjected to early revascularization as that of STEMI. They have markedly improved mortality rate as compare to our study, mostly because of early revascularization.

CONCLUSION

More than one third of the patients admitted with acute coronary syndrome had diabetes mellitus. New onset AF, ventricular arrhythmias and mortality were higher in the NSTEMI group than in unstable angina.

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