Clinical profile of patients with acute coronary syndrome in Lumbini Medical College and Teaching Hospital: A prospective study

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ABSTRACTS

Background: The clinical profile among patients with acute coronary syndromes (ACS) is not well studied in this western part of Nepal where Lumbini Medical College and Teaching Hospital (LMCTH) is situated. Cardiovascular disease is now the most common non communicable disease killing thousands of people worldwide. The trend of incidence is increasing in the developing countries including Nepal. **Objective:** To obtain the clinical profile of patient presenting with ACS in LMCTH. **Material and Method:** This is a prospective study carried out in LMCTH in the department of Internal Medicine April 14, 2013 to October 14, 2013. Patients were diagnosed to have ACS based on their clinical findings, Electrocardiogram (ECG) and Troponin test. Those with non-cardiac chest pain were excluded. A detail history and all the data pertaining to the patient were noted analyzed in a systematic way. **Results:** A total of 40 patients with ACS presented during the study period in LMCTH. The mean age of presentation was 67±18 years. Thirty out of those constitute male (75%). Six patients (15%) died during the study period. Seventeen (42.5%) presented with central chest pain, 13(32.5%) presented with left sided chest pain, 4(10%) presented with acute shortness of breath. Four (10%) patient presented in the state of cardiogenic shock and 2 (5%) presented with the Ventricular tachycardia (VT) as their complication. 6 (15%) had unstable angina (UA), 14 (35%) had Non ST elevation Myocardial Infarction (NSTEMI) and 20 (50%) had ST elevation Myocardial Infarction (STEMI). Of the total 20 (50%) patient who had STEMI, only four of them underwent thrombolysis. Anterior wall MI was the most common wall involved. Circadian variation study showed peak incidence of acute coronary syndrome during the early morning hours. Mean duration of symptoms before presentation to the hospital facility was 4 days. Mean hospital stay was 5±2 days. **Conclusion:** Cardiovascular disease is common in this Western part of Nepal. STEMI was the commonest presentation and the incidence was more among the male and the elderly patients.

Keywords: *Acute coronary syndrome, S T elevation myocardial infarction, Ventricular tachycardia*

INTRODUCTION

Patients with ischemic heart disease (IHD) presents with two main spectrum, stable angina in which the patient has chronic coronary artery disease and those who with acute coronary syndrome consisting of patients with ST elevation Myocardial infarction (STEMI), unstable angina (UA) and Non-ST-segment elevation MI (NSTEMI).[1]

Due to the advances in medical sciences of various invasive and non-invasive therapeutic strategies the mortality related ACS has significantly reduced in the developed world over the past 2 decades.[2-7]

The prevalence of coronary artery disease is related to various modifiable and non-modifiable risk factors such as gender, age and ethnicity. The cardiovascular disease has become a major health burden in developing countries which is on the verge of epidemic.[8]

PATIENTS AND METHODS

The study was conducted prospectively for six months in the department of Internal Medicine from April 14, 2013 to October 14, 2013. Those cases with proven non-cardiac chest pain were excluded from the study. The cases were grouped into those presented with STEMI and those presented with NSTEMI and UA. Cases of chest pain/ discomfort with elevation of ST segment in ECG leads/ presumed new onset left bundle branch block in ECG were categorized as STEMI. Cases of angina at rest without ST segment elevation were categorized as NSTEMI if their cardiac Troponin T (Trop I) was positive and as UA if their Trop I was negative.

The baseline clinical characteristics analyzed were the age, gender, hypertension (blood pressure > 140/90 mm Hg and/ or those already taking treatment for hypertension), diabetes mellitus (fasting blood glucose >126 mg/dL and/or postprandial blood glucose >200 mg/dL and those who were on treatment for diabetes mellitus), dyslipidemia (cholesterol >190 mg/dL and/or triglycerides >200 mg/dL), smoking status, duration of chest pain before hospitalization, time of occurrence of

the ACS, clinical course in the hospital, the mean duration of hospital stay and complications related to the ACS and its treatment. In cases with STEMI, the details of the area of myocardium infarcted, the associated mechanical complications and conduction abnormalities, further, a record was made whether thrombolytic therapy was received or not. The cause of death was also studied.

RESULTS

A total of 40 patients with acute coronary syndrome (ACS) presented during the study period in LMCTH. The mean age of presentation was 67±18 years. Thirty patients were males (75%). Six (15%) patients died during the study period. A comparison of the clinical characteristics of the patients with ACS is shown in the table 1. Patients presented with various symptoms in the hospital. Seventeen (42.5%) presented with central chest pain, 13(32.5%) presented with left sided chest pain, 4(10%) presented with acute shortness of breath. Four (10%) patient presented in the state of cardiogenic shock and 2 (5%) presented with the Ventricular tachycardia (VT). The patient presented with cardiogenic shock and VT died.

Table 1: The baseline characteristics among males and females with ACS

Variables	Total n (%) 40 (100)	Male n (%) 30 (75)	Female n (%) 10 (25)	P value
Mean age	67.85	65.13	76	<0.001
Mean duration before hospitalization	4days	4.44days	2.6 days	<0.001
Symptoms before hospitalization				
<6hrs	14 (35)	10 (33.33)	4 (40)	<0.001
7-12 hrs	2 (5)	2 (6.66)	0	---
>24hrs	24 (60)	18 (60)	6 (60)	<0.001
Smoking history	26 (65)	20 (66.66)	6 (60)	<0.001
Hypertension	22 (55)	14 (46.66)	8 (80)	<0.001
Diabetes	8 (20)	8 (26.66)	0	----
Thrombolysis	4 (10)	4 (13.33)	0	----

Of the total 20 (50%) patient who had STEMI, only four of them underwent thrombolysis. Rest was not thrombolysed because of the late presentation and the complication they had which contraindicated thrombolysis.

ACS was most common in anterior wall and inferior wall than any others wall (fig 2).

Eighteen patients (45%) had anterior wall involvement, 14(35%) had inferior wall, 6(15%) had extensive wall involvement. All six mortalities were from involvement of anterior wall.

The time of onset of chest pain among patients with STEMI showing the circadian variation of cardiac events is depicted in Figure 3. Mean duration of symptoms before presentation to the hospital facility was 4 days. Mean hospital stay was 5±2 days.

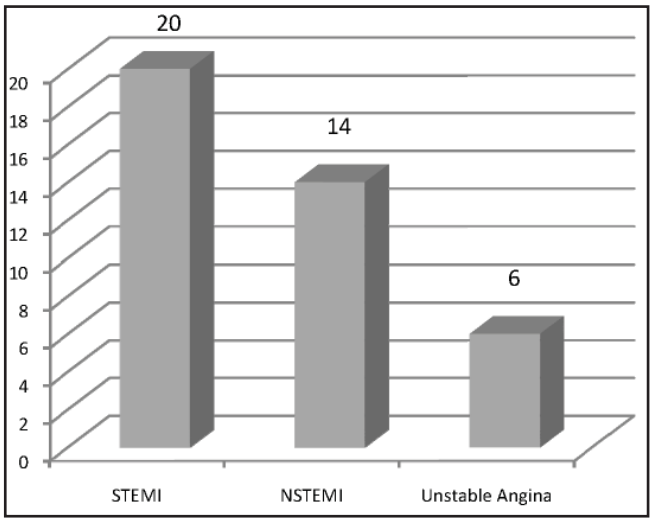

Fig 1. *Categories of patients with ACS*

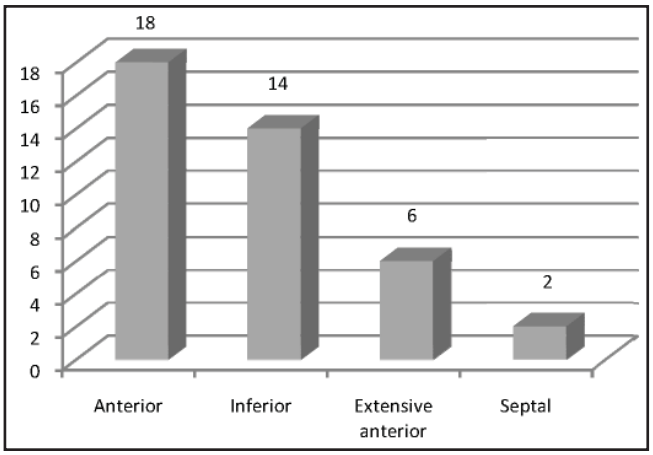

Fig 2. *Involved wall in patients with ACS*

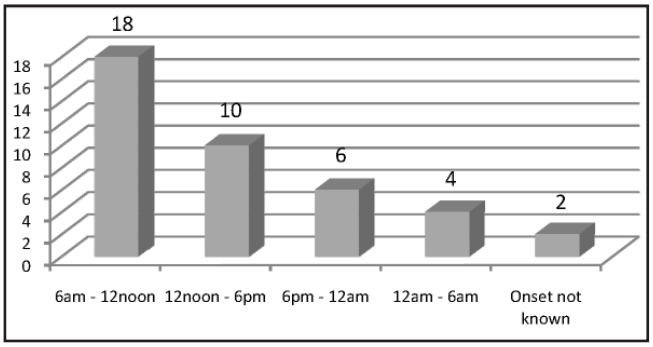

Fig 3. *Circadian variation of cardiac events noticed among patients with ACS*

DISCUSSION

Lumbini Medical College with its 700 bed teaching hospital has emerged as a tertiary referral center for the hospitals in Western Nepal and different health facilities of peripheries. There are few data regarding the acute coronary syndrome from this part of Nepal. So this study was done to know the spectrum of acute coronary syndrome as they present in hospital and their clinical profile.

Cardiovascular disease is on the rise in the developing country which has become a burden.[8] Even in the developed countries, despite of efforts of reducing the major risk factors like cigarette smoking and sedentary lifestyle, the cardiovascular disease remain the major cause of morbidity and mortality due to increase population of elderly population and absolute increases in obesity and diabetes.[9] There has been rise in the incidence of coronary artery disease in the Asian population.[10-12]

Of the total 40 patients who were diagnosed with ACS by the clinical, ECG and laboratory parameters, 50% had STEMI, 35% had NSTEMI and, 15% had unstable angina. This study also showed a higher proportion of STEMI cases among patients with ACS as observed in the CREATE registry.[13]

The mean age of presentation was 67±18 years. The mean age of patient presenting with STEMI was 67±14 years, which is comparable to observations of CREATE registry[13] and study done by Teoh M et al.[14]

Though we observed an in-hospital mortality rate of 15% that was much higher than the mortality rate observed among ACS cases in the CREATE registry (5.6%), it was comparable to the mortality rates among patients, not undergoing coronary interventions, observed by other.[15]

Higher in-hospital mortality rate among our STEMI cases compared to the mortality rate observed among cases from the CREATE registry [13] (30% vs. 8.6%) may be related to the higher number of elderly patients in our study.

There was a male preponderance was observed in this study was comparable to another series reported from North India,[16] CREATE registry [13] and study done by Teoh M et al.[15]

Seventeen (42.5%) presented with central chest pain, 13(32.5%) presented with left sided chest pain, 4(10%) presented with acute shortness of breath. Study done by Patel et al[17] also showed similar findings of higher rate classic chest pain among the patient with ACS.

Of the total 20 (50%) patient who had STEMI, only four of them underwent thrombolysis which was due to late presentation in the hospital facility or due to the complication. The mean duration of symptoms before hospitalization was 4 days which is different from the western[18] and indian[13, 19] studies which shows increasing trends towards the earlier presentation. This is mainly due to the lack of education, lack of health awareness, remote locations and lack of transportation system and inaccessible health facility.

Circadian variation of incidence of acute coronary syndrome, with an early morning peaking of events, were observed in our study which is similar to western studies and in a recent study [20] reported from Singapore and from Indian studies recently conducted by Gopal et al.[21]

Significantly higher numbers of patient with ACS in our study had risk factors like hypertension, diabetes and cigarette smoking as observed in other studies.[18, 19]

CONCLUSION

Acute coronary syndrome is common in this Western part of the country. The main limitation of this study was the short duration and the small sample size. Further larger prospective studies with large sample size are required to verify the findings of this study.

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