

Clinical Profile of Acute Coronary Syndromes (ACS) in North Indian Population: A Prospective Tertiary Care Based Hospital Study.

Sandeep Sharma¹, Aamir Rashid², Mohammad Ashraf³, Mohd Ismail⁴, Masood Tanvir⁵, Pooja Sharma⁶, Shahood Ajaz⁷

¹Post graduate Scholar, Department of Medicine, Government Medical College, Srinagar, Jammu and Kashmir, India,,

²Senior Resident, Department of Cardiology SKIMS.

³Assistant professor, Department of Medicine, Government Medical College, Srinagar, Jammu and Kashmir, India,

⁴Associate Professor, Department of Medicine, Government Medical College, Srinagar, Jammu and Kashmir, India,

⁵Professor, Department of Medicine, Government Medical College, Srinagar, Jammu and Kashmir, India,

⁶Senior Resident, Department of Obstetrics and Gynaecology, Government Medical College, Srinagar, Jammu and Kashmir, India,

⁷Post-graduate Scholar, Department of Medicine, Government Medical College, Srinagar, Jammu and Kashmir, India.

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ABSTRACT

Background: The overall prevalence of coronary artery disease in Jammu & Kashmir population studied by all diagnostic measures is 7.54% with rural of 6.7% with urban population. Very scarce data is available regarding clinical profile of ACS patients in our Kashmiri population. Aim: To study the clinical profile, risk factors prevalence, angiographic profile in acute coronary syndrome (ACS) patients of North Indian population. **Methods:** The study was conducted at GMC, Srinagar, Jammu and Kashmir, India. It was prospective observational study. It included all patients, admitted as ACS in between the period from April 2014 to August 2015 with a diagnosis of acute coronary syndrome. All-cause 30 days mortality was seen in all patient taken under study. **Results:** In our study total of 693 ACS patients were enrolled. The mean age of patients was 60.72± 12.02 years range (32-90 years). Males were 522 while as females were 171 (M: F 4:1). Most patients had STEMI 430 (62.04%) followed by (NSTEMI) 227 (32.75%) and unstable angina (UA) 36 (5.19%). 308(44%) were diabetics while as 385(56%) were non-diabetics. Hypertension was present in 516 of 693 patients (74.45%). BMI > 25 was seen in 405 (58.44%) patients and 45 patients (6.5%) had BMI of more than 30. Smoking as a risk factor was present in 456 patients (65.80%). Past history of CAD was present in 87 (12.5%) of patients. Dyslipidemia was present in 415 (59.8%) patients. Angiography was done in 1443 (92.38%) patients. Left anterior descending was most commonly involved vessel (2/3rd cases) followed by near similar involvement of right coronary artery and left circumflex while as left main was least commonly involved. Single-vessel disease was present in 15 (41.6%) UA, 140 (61.67%) NSTEMI and 237 (55.11%) STEMI patients. Double-vessel disease was present in 10 (27.77%) UA, 47 (20.7%) NSTEMI and 86 (20%) STEMI patients. Triple vessel disease was present in 3 (8.3%) UA, 22 (9.6%) NSTEMI, 49 (11.39%) STEMI patients. LM disease was present in 1 (2.7%) UA, 3 (1.3%) NSTEMI, 4 (0.9%) STEMI patients. Complications; ventricular septal rupture occurred in 1 (0.1%), free wall rupture in 1 (0.1%), cardiogenic shock in 20 (2.8%), severe mitral regurgitation in 2 (0.28%), complete heart block in 5 (0.7%) patients. Total 50 (7.2%) patients died in hospital. **Conclusion:** STEMI was most common presentation. LAD was most commonly involved vessel. Males predominated in our ACS population. Hypertension and Smoking were most prevalent risk factors. Diabetics had more aggressive disease with higher morbidity and mortality as compared to non-diabetics.

Keywords: Acute coronary syndrome non-ST elevation myocardial infarction, ST elevation myocardial infarction, unstable angina, Kashmiri population.

INTRODUCTION

Coronary artery disease is leading cause of mortality worldwide and by 2020,^[1] will be first in the leading causes of disability.^[2]

The prevalence of CAD has increased from 1.1% to about 7.5% in the urban population and from 2.1% to 3.7% in the rural population in last three decades.^[3] The overall prevalence of coronary artery disease in Jammu & Kashmir population studied by all diagnostic measures was 7.54% with rural of 6.7% and urban of 8.37% prevalence was higher in males, 7.80% than in females 6.63%.^[4] CAD tends to occur at a younger age in Indians, with more extensive angiographic involvement.^[5] Various genetic, metabolic, conventional and nonconventional risk factors are responsible for

Name & Address of Corresponding Author

Dr. Aamir Rashid
Senior Resident
Department of cardiology
SKIMS.

this.^[6,7] With advanced therapeutic strategies, the mortality related to ACS has significantly reduced in the developed world over the past 20 years.^[8-13] But the mortality remains high among Indians.^[14-19] There are very few studies describing the ACS profile in Kashmiri population . The objective of this study was to analyzed the clinical, angiographic profile and risk factors in acute coronary syndrome (ACS) patients of North Indian population.

Aims and Objectives

To study the clinical profile, risk factors, angiographic profile and short-term mortality of acute coronary syndrome patients in our population.

MATERIALS AND METHODS

The study was conducted in the Postgraduate Department of Medicine at S.M.H.S Hospital, Srinagar. It was prospective; Observational study. It included patients of either sex admitted in medicine department in between the period from April 2014 to August 2015 with diagnosis of acute coronary Syndromes which include STEMI, NSTEMI and Unstable Angina. Detailed history, physical examination and relevant investigations were done. All cause 30 day mortality was studied in all patient taken under study.

RESULTS

In our study total of 693 ACS patients were enrolled. The mean age of patients was 60.72± 12.02 years range (32-90 years).Males were 522 while as females were 171(M:F 4:1).The baseline characteristics and risk factor profile is shown in [Table 1]. 308(44%) were diabetics while as 385(56%) were non-diabetics. Hypertension was present in 516 of 693 patients (74.45%). BMI > 25 was seen in 405 (58.44%) patients and 45 patients (6.5%) had BMI of more than 30.Smoking as a risk factor was present in 456 patients (65.80%). Past history of CAD was present in 87 (12.5%) of patients .Dyslipidemia was present in 415 (59.8%) patients. The clinical presentation and Killip class is shown in [Table 2]. The distribution of coronary vessel involvement in various types of ACS is shown in [Table 3] with SVD being most common while as the patterns of specific coronary involvement showed LAD most commonly affected as shown in [Table 4]. Complications; ventricular septal rupture occurred in 1 (0.1%), free wall rupture in 1 (0.1%), cardiogenic shock in 20 (2.8%), severe mitral regurgitation in 2 (0.28%), complete heart block in 5 (0.7%) patients. Total 50 (7.2%) patients died in hospital. Diabetics had more mortality than non diabetics (10 % vs 6% p<0.05).

Table 1: Baseline parameters

Parameters	Baseline Values
Age (Years)	60.72± 12.02
Male n (%)	522(75.32%)
Risk factors n (%)	
Diabetes	308(44)
Smoking	456(65.8)
Hypertension	516(74.45)
BMI > 25	405(58.44)
Family history	60(8.6%)
Dyslipidemia	415(59.8)
Hb	13.1±2.1
Ejection fraction(median %)	
STEMI	50
UA/NSTEMI	58

Table 2. Clinical presentation

Symptoms	Number Of Patients (%)
Chest pain	637(91.9)
Breathlessness	486(70)
Sweating	520 (75)
Palpitation	346 (49.9)
Giddiness	263 (37.9)
Vomiting	103 (14.8)
Abdominal pain	50 (5.7)
Killip Class 1	423 (61)
Killip Class 2	184 (26.5)
Killip Class 3	60 (8.6)
Killip Class 4	26 (3.8)

Table 3: Distribution of coronary vessels involvement in ACS patients.

Acs	Nor mal N (%)	Non-Signif icant N (%)	Svd N (%)	Dvd N (%)	Tvd N (%)	Lm N (%)
UA (36)	4(11.1%)	3(8.3 %)	15(41.6 %)	10(27. 7%)	3(8.3 %)	1(2. 7%)
NST EMI (227)	5(2.2 %)	10(4.4 %)	140(61. 67%)	47(20. 7%)	22(9.6 %)	3(1. 3%)
STE MI (430)	20(4. 65%)	34(7.9 %)	237(55. 11%)	86(20 %)	49(11. 39%)	4(0. 9%)

Table 4: Pattern of coronary artery involvement

ACS	Number (%)	LA D N (%)	LCX N (%)	RCA N (%)	LM n (%)
UA	36(5.19%)	23 (63.8)	10 (27.7)	11(30.5)	1(2.7%)
NSTE MI	227(32.7%)	159 (70)	76(33. 4)	63(27.7)	3(1.3%)
STEMI	430(62.04 %)	305 (70.9)	138 (32)	164(38. 1)	4(0.9%)

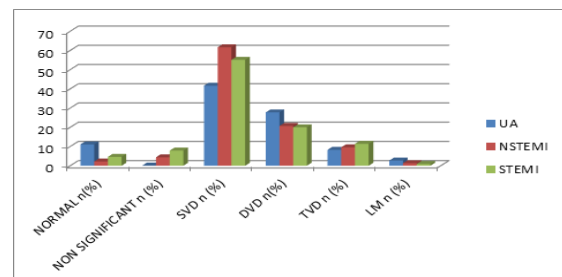


Figure 1: Distribution of coronary vessels involvement in ACS patients.

DISCUSSION

This is one of the few studies describing ACS profile in Kashmiri population. The mean age of presentation of our patients was 60.72 ± 12.02 years range (32-90 years). This is in difference to other Indian ACS registries which have more earlier age of presentation, however it is similar to some western studies.^[17,19-21] Males predominated (M:F 4:10), this can be attributed to the gender bias and atypical presentation, also observed in INTERHEART study (South Asian cohort overall male, 76% and South Asian cohort, 85%).^[22] We also noticed higher proportion of STEMI cases among ACS which is consistent with CREATE registry. The prevalence of hypertension in our ACS patients was 75%. This is higher as compared with INTERHEART study (31%). 44% were diabetics. It is higher as compared to INTERHEART, however near to other Indian studies.^[17,19] By 2025, the number of diabetics in India is projected to surpass 57.2 million. Diabetics have endothelial dysfunction, dyslipidemia, chronic inflammatory state which is responsible for increased atherosclerosis. Smoking was present as risk factor in 65% of the cohort. Smoking was also most common modifiable risk factor in INTERHEART. BMI more than 30 was seen in 6.5% of patients which is less as compared with INTERHEART (44%), which may be due to different criteria used in INTERHEART (waist hip ratio). Dyslipidemia was present in 60% of the cohort, however no significant relationship could be found between levels of various lipid parameters and CAD severity on angiography. Single-vessel disease was most prevalent across all ACS group followed by double-vessel and triple vessel which is similar to other studies.^[23,24] Unstable angina was more commonly associated with normal coronaries (11.1%) compared to NSTEMI (2.2%) and STEMI (4.6%). Many patients especially females who are diagnosed as UA are actually false positive cases, which account for higher number of normal coronaries in this group. Angiographically the absolutely normal vessels in STEMI can be attributed to complete recanalization whether postthrombolysis or spontaneous. In our study, prevalence of multi-vessel disease (double vessel disease and triple vessel disease) was almost double in diabetic, newly detected diabetes (63.8%, 51%) as compared to normal glycemic status group in which double vessel disease plus triple vessel disease is 31.7%. Diabetic status had a significant impact on morbidity & mortality of the patients with ACS in our study. Patients with diabetes and first time detected diabetes had more number of patients in advanced Killip class (Killip class 3 -32.3% and 20.6% resp.) compared to patients with normal blood sugar (8.6%). In our study all cause 30 days mortality in known diabetics was 10.8% and those of first time detected diabetics was 8.8% which is

almost double of the normal glycemic acute coronary syndrome patients [5.8%].

CONCLUSION

STEMI was most common presentation. LAD was most commonly involved vessel. Males predominated in our ACS population. Hypertension and Smoking were most prevalent risk factors. Diabetics had more aggressive disease with higher morbidity and mortality as compared to non-diabetics.

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