

Original Research Article
**TO STUDY CLINICAL AND ANGIOGRAPHIC PROFILE OF ACUTE
CORONARY SYNDROME IN YOUNG PATIENTS (<40 YEARS OF
AGE)**

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Abstract

Background & Methods: The aim of the study is to study clinical and angiographic profile of acute coronary syndrome in young patients (<40 years of age). The diagnosis of ACS was established as per the accepted criteria of ACC/AHA guidelines with typical history of chest pain/ discomfort, ECG changes, and increased myocardial biomarkers. After hospitalisation all the patients were managed as per the AHA/ACC guidelines; with supportive therapy/ revascularisation therapy.

Results: AWTMI (50%) was the most common clinical diagnosis in these patients, followed by ALWTMI(20%), IWTMI(16.66%) and LWWTMI(10%) in the study. Among the male patients; AWTMI is the most common clinical diagnosis (51.85%) followed by ALWTMI (18.5%), IWTMI (18.5%) and LWWTMI (11.11%); while in female patients; AWTMI, ALWTMI and UA were observed in 33.3% of patients each in the study. There were 73.33% patients with SVD, 16.66% with DVD and 10% with normal/ insignificant coronary stenosis. There were 81.4% male patients with SVD and 14.8% with DVD; while only 33.3% female patients were found to have DVD and rest with normal/ insignificant coronary stenosis.

Conclusion: In young patients (<40years of age) of ACS, the maximum number of patients were in the age group of 31-40 years (93.7%) with their mean age of 36.8±3.3 years. Chest pain (100%) was the most common presenting symptom in young patients with ACS in both sexes. Urbanisation and sedentary lifestyle were found as the common predisposing factor for ACS in young patients. AWTMI (50%) was the most common site of involvement in the young patients (<40 years of age) with ACS and SVD (73.33%) was the common angiographic finding.

Keywords: clinical, angiographic & acute coronary syndrome.

Study Design: Observational Study.

1. Introduction

CORONARY ARTERY DISEASE (CAD) is a major public health problem in both, the developed & developing world(1). There is a general agreement on a multi-factorial aetiology of CAD and the incidence of CAD is increases with age. Nevertheless, it has been recognised in young age group more frequently in recent years. Worldwide about 4% of the patients with myocardial infarction (MI) are younger than 40 years of age (2).

ACUTE CORONARY SYNDROME (3) (ACS) refers to complete / almost complete obstruction of the culprit coronary artery, presenting with typical clinical presentation, biochemical and electrocardiogram (ECG) findings. ACS has evolved to refer a constellation of clinical symptoms that encompass ST-segment elevated MI (STEMI) and non ST-segment

elevated ELEVATION ACS (UNSTABLE ANGINA & NSTEMI). Thus the spectrum of ACS includes- unstable angina (UA), NSTEMI & STEMI.

As compared to the developed countries India has a very large young population with only 3% above the age of 65yrs. By 2015 India will be projected to have 62 million patients with CAD, of which 23 million will be <40 year of age(4).

Keeping this in mind a study was planned to know the clinical profile, risk factors and angiographic profile of ACS in young patients(<40yrs of age). The study focuses our attention on the rising trend of ACS in young patients.

However ACS in our country is quite common without ascertained risk factor profile. We therefore sought to establish the risk factor profile for ACS in young patients. By increasing public awareness and health education, we can go a long way in preventing and minimising the risk of ACS in young patients(5). In 2004, M.A. Srilakshami et al(6) observed a shift in CAD towards young patients with these risk factors-genetic, sedentary lifestyle, obesity with male predominance. There were 22.64% smoker, 18.86% diabetic, 15.09% hypertensive, 5.66% with family history of premature CAD. There were 15 (28.3%) patients with recent anterior wall myocardial infarction (MI); 6 (11.32%) patients with acute anterior wall MI; and 9 (16.9%) patients with recent inferior wall MI. There were 6 (11.3%) patients with chronic stable angina and 5 (9.43%) patients with unstable angina. There were 32.07% with significant proximal LAD stenosis, 15.09% with significant proximal RCA stenosis, 7.54% with LCX mid lesion and lesion of obtuse marginal coronary arteries. There were 9.43% with DVD (DOUBLE VESSEL DISEASE) involving LAD& LCX. 3.77% had TVD (TRIPPLE VESSEL DISEASE) involving- LAD, LCX &RCA(7).

2. Material and Methods

The study was carried out in 60 patients at BIMR Hospital, Gwalior, who were presented to the medicine ward/ emergency ward/ cardiology ward with typical clinical symptoms of ACS(UA, NSTEMI & STEMI). The diagnosis of ACS was established as per the accepted criteria of ACC/AHA guidelines with typical history of chest pain/ discomfort, ECG changes, and increased myocardial biomarkers.

After hospitalisation all the patients were managed as per the AHA/ACC guidelines; with supportive therapy/ revascularisation therapy. Patients underwent coronary angiography (CAG) during management as per standard practice guidelines. These patients were subjected to detailed history of risk factors, physical examination, ECG changes, cardiac biomarkers, echocardiography and coronary angiography.

INCLUSION CRITERIA

1. Any patient presented with typical history of ACS.
2. Patients <40 years of age.

EXCLUSION CRITERIA

1. Patients with age >40 years.
2. Patients refusing indoor admission
3. Having advance renal failure precluding possibility of use of dye.
4. Having history of bleeding disorder.
5. Patient allergic to dye.

3. Result

Table No. 1: Distribution of acute coronary syndrome in different age & sex group

Age	Male (54)	Female (06)	Total
12-20 Yrs	00	00	00
21-30 Yrs	02(3.7%)	02(33.3%)	04(6.7%)
31-40 Yrs	52(96.3%)	04(66.6%)	56(93.7%)
Total	54(90%)	06(10%)	60(100%)

The above table shows that there were maximum number of patients (93.7%) in the age group of 31-40 yrs with their mean age of 36.8 ± 3.3 yrs. The male to female patients ratio was 9:1.

Table No. 2: ACS PATIENTS AND THEIR CLINICAL PRESENTING COMPLAINTS

Presenting Complaint	Male (54)	Female (06)	Total
Chest Pain	46(76.6%)	04(6.6%)	50(83.4%)
Shortness of Breath	08(13.4%)	02(3.4%)	10(16.6%)

Table No. 3: ACS PATIENTS AND THEIR CLINICAL DIAGNOSIS

Clinical Diagnosis	Male (54)	Female (06)	Total
Unstable Angina	00	02(33.3%)	02(3.3%)
AWMI	28(51.85%)	02(33.3%)	30(50%)
LWMI	06(11.11%)	00	06(10%)
ALWMI	10(18.5%)	02(33.3%)	12(20%)
IWMI	10(18.5%)	00	10(16.6%)

The above shows that; AWMI (50%) was the most common clinical diagnosis in these patients, followed by ALWMI(20%), IWMI(16.66%) and LWMI(10%) in the study. Among the male patients; AWMI is the most common clinical diagnosis (51.85%) followed by ALWMI (18.5%), IWMI (18.5%) and LWMI (11.11%); while in female patients; AWMI, ALWMI and UA were observed in 33.3% of patients each in the study.

Table No. 4: ACS PATIENTS AND THEIR ANGIOGRAPHIC INVOLVEMENT

CAG Findings	Male (54)	Female (06)	Total
SVD	44(81.4%)	00	44(73.3%)
DVD	08(14.8%)	02(33.3%)	10(16.6%)
TVD	00	00	00
Normal/Insignificant Stenosis	02(3.7%)	04(66.6%)	06(10%)

From the above table it is observed that; there were 73.33% patients with SVD, 16.66% with DVD and 10% with normal/ insignificant coronary stenosis. There were 81.4% male patients with SVD and 14.8% with DVD; while only 33.3% female patients were found to have DVD and rest with normal/ insignificant coronary stenosis.

4. Discussion

In the present study it is observed that; central obesity (53.33%) was as the most frequent component of MS these patients followed by hypertension(50%), low- HDL(40%), hypertriglyceridemia(20%) and diabetes(6.66%). In male patients; hypertension (51.85%) and central obesity (51.85%) were observed as the most common components of MS followed by low-HDL(33.3%), hypertriglyceridemia (22.2%) and DM(7.4%)(8). While in female patients; low-HDL (100%) is the most common component of MS followed by central obesity (66.6%) and hypertension(33.3%). There was no female patient with DM and hypertriglyceridemia. It is also observed that among male patients; 12/27(44%) patients had 2, 5/27(18.5%) had ≥ 3 and 4/27(14.8%) had only one component of MS. While in female patients; there were 33.3% each with one, two and three components of MS respectively. Thus overall 18.5% males and 33.3% females has MS(9).

In 2007 Chung et al(32), observed that of the 161 patients in the study, 76(47%) have MS (they have met ≥ 3 of 5 criteria of MS) and 85(53%) did not have MS. 64 patients(84%) with MS and 77 of those without MS(90%) were male. Thirty-seven of the 76 patients with MS(49%) met 3 of 5 criteria, 24 (32%) met 4 criteria and 15 (19%) met all the 5 criteria(10). In the present study it is observed that; AWTMI (50%) was the most common clinical diagnosis in these patients, followed by ALWTMI (20%), IWTMI (16.66%) and LWMI (10%) in the study.

In 2004, MA Srilakshami et al(6) ; observed that there were 15 (28.3%) patients with recent anterior wall myocardial infarction (MI); 6 (11.32%) patients with acute anterior wall MI; and 9 (16.9%) patients with recent inferior wall MI. There were 6 (11.3%) patients with chronic stable angina and 5 (9.43%) patients with unstable angina. In 2006, G Sengottuvelu et.al(8); observed that ST segment elevation MI involving antero-septal wall was seen in 15 (46.9%) cases, antero-lateral wall in 3 (9.4%) cases and inferior wall in 7 (21.9%) cases, seven (21.9%) cases had non-ST segment elevation MI. In 2006 KR Vinod et al, observed that anterior wall (62%) was the commonest site affected(11-12).

5. Conclusion

In young patients (<40years of age) of ACS, the maximum number of patients were in the age group of 31-40 years (93.7%) with their mean age of 36.8 ± 3.3 years. Chest pain (100%) was the most common presenting symptom in young patients with ACS in both sexes.

Urbanisation and sedentary lifestyle were found as the common predisposing factor for ACS in young patients. AWMIs (50%) were the most common site of involvement in the young patients (<40 years of age) with ACS and SVD (73.33%) was the common angiographic finding.

6. References

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