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Clinical And Treatment Profile Of Young Patients With STEMI In a Tertiary Care Hospital Of Central India

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ABSTRACT A retrospective study of 89 consecutive patients of ≤30 years of age with ST elevation myocardial infarction who underwent CAG from Jan 2014 to Jan 2016 was conducted to evaluate the clinical profile, risk factors, modes of presentation, coronary angiographic (CAG) findings and treatment. Majority of patients were male in age group of 26-30 years. Smoking was the commonest risk factor followed by obesity. Chest pain was commonest symptom. Anterior wall MI was the commonest site with Left anterior descending artery (LAD) was the commonest artery involved. Two-third of patients were medically managed while rest one third of patients underwent angioplasty with drug eluting stent (DES). Conclusion: STEMI in young patients appears to be related to smoking and hence as expected more common in male patients with thrombotic occlusion which could be managed without intervention most of the times.

KEYWORDS :

Introduction:
Acute myocardial infarction (AMI) is not limited to old age in these days. Younger ones are increasingly suffering from AMI. This study was conducted to learn the profile of young ST elevation myocardial infarction (STEMI) patients (≤30 years) with an emphasis on assessment of the risk factors, modes of presentation, coronary angiographic findings & treatment.

Methods
This was retrospective study where we collected data of 89 consecutive patients aged ≤30 years with ST elevation myocardial infarction who underwent coronary angiography from January 2014 to January 2016 at our institute (a tertiary care hospital). Details about age, gender, risk factors, and location of myocardial infarction, coronary angiography findings & treatment received were studied.

Patients of ≤30years age, with first ever STEMI and undergoing CAG were included. Patients with previous myocardial infarction, history of percutaneous coronary intervention (PCI) and coronary artery bypass grafting (CABG) were excluded. Patients were evaluated for following risk factors -hypertension, diabetes, smoking, dyslipidemia, obesity (BMI of >25Kg/m^2) and family history of CAD. STEMI was diagnosed as per consensus paper from ESC-ACC-AHA-WHF joint taskforce.[1] Hypertension was defined as per JNC 7 guidelines. Diabetes was defined as per American Diabetes Association guidelines 2013 if random blood glucose ≥ 200 mg/dL, fasting (no caloric intake for 8 hours) blood glucose ≥ 126 mg/dL confirmed on separate day with repeat testing & HbA1c ≥ 6.5%. Dyslipidemia was defined in accordance with the reports of the National Cholesterol Education Programme (Adult Treatment Panels III). [2] Current smokers were defined as individuals who smoked cigarettes in the previous 12 months. Individuals who had quit smoking more than a year earlier were classified as former smokers. [3]Family history of coronary heart disease was considered as risk factor if CAD occurred in family member before age of 55 years.

Significant coronary disease was defined as at least 70% reduction in the internal diameter of the coronary arteries and their branches, or ≥ 50% reduction in the internal diameter of the left main coronary artery. *Moderate disease* was defined as 50% to 69% stenosis of major coronary artery segments, 70% to 100% of minor segments or 30% to 49% of the left main coronary. *Minimal disease* was defined as less coronary obstruction than that for moderate disease. Angiographically normal coronaries had no appreciable stenosis. In the present analysis, patients with minimal or moderate disease were combined and classified as having *non-obstructive disease.*[4]

We studied age, gender, clinical history (which included risk factors), clinical examination & investigations which included ECG, 2D-ECHO & colour doppler, blood sugar levels, HbA1C levels, fasting lipid profile, cardiac markers & coronary angiography were assessed in all patients.

Observations:
A total of 89 patients were studied. Most of the patients i.e. 64.04% (57/89) were in the age group of 26-30 years. Minimum age of presentation was 21 years. Majority of patients 89.98% (80/89) were male. Smoking was commonest risk factor 59.55% (53/89) followed by obesity in21.34% (19/89) and family history of CAD in 14(15.73%). 66.29% (59/89) patients had a single risk factor while 29.21% (26/89) patients had multiple risk factors pertaining to coronary artery disease (Table 1). Chest pain was the most common presenting symptom 98.87% (88/89) followed by sweating 41.57% (37/89), nausea & vomiting 26.96% (24/89) and dyspnea constituted 21.34% (19/89) . No patient in the present study had syncope or fatigue. Anterior wall MI was the commonest site , seen in 82.02% (73/89). Inferior wall MI constituted 16.85% (25/89) of young STEMI patients. Majority of patients had single vessel disease 57.30% (51/89). LAD was the commonest artery involved (80.89%), followed by RCA in10.11% and LCX in 4.49% (Table 2). Two thirds of the patients were managed medically. One thirds of the patients underwent angioplasty with drug eluting stent.

Discussion:
AMI is not limited to old age in these days. Young patients are increasingly suffering from AMI. High male: female ratio of 8.8:1 is consistent with other studies [5] where it was found to be 20:1. Cigarette smoking (59.55%) was major risk factor in our study which is consistent with other studies. [3,4,5] Obesity (21.34%) was second most important risk factor in our study which was infrequent cause in all the earlier studies 3.3–20%[5,6]. These 2 risk factors are amenable to preventive strategies & if controlled can have large impact on overall incidence of young AMI patients. Hypertension (12.35%) & diabetes (11.23%) were less common in our study as replicated in earlier studies also[7, 8] .Our study patients had family history of CAD (15.73%) which was higher than in other studies. [7,8] 66.29% (59/89) patients had single risk factor while 29.21% (26/89) patients had dual risk factors pertaining to coronary artery disease while in a study by Shah et al [9] 32.71% patient had single risk factor while 36.45% patient had dual risk factors for coronary heart disease.
Chest pain (98.87%) was the most common presenting symptom in our study as was seen in other studies. [5,6,9,10]. Anterior wall (82.02%)

was commonest anatomical site for STEMI in our study which was comparable to other studies.[5,6,9,10] Majority of patients (57.30%) had single vessel disease. LAD was the most commonly involved artery (80.89%) in the studied population. [5,6,9,10] In our study 32.54% patients underwent angioplasty with DES as compared to Baligar et al [11] in which 24.1% patients underwent angioplasty.

Conclusions:

STEMI was more frequent in males as compared to females in studied young patients. Smoking was commonest risk factor. Majority of patients had chest pain as presenting symptom. Anatomically, anterior wall was commonest site for STEMI in study population. High incidence of single vessel disease & greater frequency of LAD artery involvement was noted. Two thirds of thepatients were medically managed while 1/3rd underwent coronary angioplasty with DES.

Cultivating good habits in the earlier years of life, educating smokers to quit smoking, controlling diabetes, hypertension & obesity could be an effective strategy to decrease the overall burden of AMI in the community.

Limitations:

Sample size was small in the present study. Only conventional risk factors were studied. Outcomes & follow up of these patients were not studied.

Table 1: Distribution of Risk Factors (n=89)

Risk Factors	Frequency	Percentage
Smoking	53	59.55%
Obesity	19	21.34%
Diabetes	10	11.23%
Hypertension	11	12.35%
Family History of CAD	14	15.73%
Dyslipidemia	07	07.86%

Table 2: Coronary Angiography profile of study population (n=89)

CAG Characteristic	Frequency	Percentage
Infarct related artery		
Normal	04	04.49
LAD	72	80.89
LCX	04	04.49
RCA	09	10.11
Number of vessel involved		
Normal	04	04.49
Recanalised	25	28.08
SVD	51	57.30
DVD	09	10.11
TVD	00	00
Left Main	00	00

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