A Comparative Study of Clinical and Angiographic Profile of Acute Stemi Patients in Age Group of Below and Above 40 Years in South Indian Population

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Background: ACS-STEMI in young adults may have some characteristics such clinical, novel CVRF's & angiographic proile that are different from those in older patients.

Objective: To assess the frequency, risk factors, presenting symptoms, treatment in-hospital outcomes of young patients with STEMI compared with those of older patients

Material and Method: The present study had 242 cases of acute ST elevation MI of both the sex, aged below and above 40 years treated in Cardiology department. Risk factors including hsCRP, Lp(a) and homocystiene; presenting symptoms, in two age groups were analyzed.

Results: Acute ST elevation MI patients in age group below 40 years were 18.6% and in above 40 years age group were 81.4%. Overall mean age of presentation of STEMI is 54.31 years. STEMI was more common in younger age group 88.9% than in older age group 76.6%. STEMI was more common in male (78.9%) than female (21.1%). Overall most common symptom was breathlessness (72.3%), in younger age group chest pain was common (71.1%). The prevalence of hypertension and DM much or less equally distributed in both age groups. Prevalence of smoking in younger age group was 64.4% and in older age group 53.3%. A family history of CAD in younger age group was 35.6% and in older age group 24.9%. Lipoprotein (a) level was higher in younger age group which is statistically significant. hsCRP levels was increased above the normal range in older age group patients which was statistically significant.

Conclusion: Acute ST elevation MI patients in age group below 40 years were 18.6% and in above 40 years age group were 81.4%. Acute STEMI was more common in male than female. Most common symptom was breathlessness. Lipoprotein (a) was significantly higher in younger age group; hsCRP was significantly higher in older age group.

Key words *– STEMI, ACS, Novel risk factors, HsCRP, Lipoprotien(a), Homocysteine, CAG*

Introduction

The novel cardiovascular risk factors (CVRFs) like homocysteine (Hcy), lipoprotein(a) (Lp[a]), high-sensitivity C-reactive protein (hsCRP) are less well studied in Indian STEMI patients. The objective of this study was to represents the clinical profile, prevalence of risk factors and distribution of coronary artery stenosis in acute coronary syndrome (ACS) patients of South Indian population of age above and below 40 years.

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Method

The present study comprised of 242 cases of acute ST elevation MI of both sexes, were analysed with

different risk factors along with novel risk factors in aged below 40 years and over 40 years treated in Cardiology dept. of G. Kuppuswamy Naidu Memorial Hospital, Coimbatore, Tamil Nadu.

Findings

Acute ST elevation MI patients in age group below 40 years were 18.6% and in above 40 years age group were 81.4%. Overall mean age of presentation of STEMI is 54.31 years.

STEMI was more common in younger age group 88.9% than in older age group 76.6%. STEMI was more common in male (78.9%) than female (21.1%).

Overall most common symptom was breathlessness (72.3%), in younger age group chest pain was common (71.1%), in older age group breathlessness (75.6%) was more common.

Overall overweight patients were more common (59.5%). In age group below 40 years patients had 71.1% overweight. The prevalence of hypertension and DM much or less equally distributed in both age groups. Prevalence of smoking in younger age group (below 40 years) was 64.4% and in older age group (above 40 years) 53.3%. A family history of CAD in younger age group (below 40 years) was 35.6% and in older age group (above 40 years) 24.9%.

Lipoprotein (a) level was higher in younger age group which is statistically significant. hsCRP levels was increased above the normal range in older age group patients which was statistically significant.

AWMI was most common presentation in both age groups; PWMI and RVMI was less common in both age groups. CAG finding shows, overall SVD was common in present study. Study shows most common coronary artery involved was LAD 27.7%. LAD involved more commonly in younger age group (below 40 years) than older age group (above 40 years). RCA was involved in more commonly in older age group than younger age group. It was observed that overall PCI to LAD was more commonly done. In present study, surgical and medical management were advised in very few patients and that is more commonly in older age group patients.

Disscussion

It was observed that acute ST elevation MI patients in age group below 40 years were 18.6% and in above 40 years age group were 81.4%.

Overall mean age of presentation of STEMI is 54.31 years. In younger age group mean age was 35.73 years and in above 40 years age group 58.55 years. STEMI was more common in younger age group 88.9% than in older age group 76.6%. STEMI was more common in male (78.9%) than female (21.1%). This findings comparable to Jayesh prajapathi *et al*[1], Gujarath study in 2014, and Sharma *et al* 2014[2] in Bengaluru and Hosseini SK *et al*[3]. 2011.

In present study overall most common symptom was breathlessness (72.3%), in younger age group chest pain was common (71.1%), in older age group breathlessness (75.6%) was more common. Breathlessness presentation was statistically significant and higher in the older age group.

The present study shows that overall overweight patients were more common (59.5%). In age group below 40 years patients had 71.1% overweight. In older age group (above 40 years) obesity was common (25.9%). Our studies findings comparable to study by Jayesh prajapathi *et al*, in Gujarat in 2014[1], by Sricharan K.N. *et al*.[4]. Overweight and obesity is more in study by Moshar S *et al.* 2016[5] in Iran as compare to present study

It was observed that prevalence of hypertension in acute STEMI patients in age group below 40 years was 42.2% and in above 40 years age group 49.2%. The prevalence of diabetes mellitus in acute STEMI patients in age group below 40 years was 55.6% and in above 40 years age group 53.8%.

In this study, prevalence of smoking in younger age group (below 40 years) was 64.4% and in older age group (above 40 years) 53.3%. The prevalence of alcohol intake in younger age group (below 40 years) was 51.1% and in older age group (above 40 years) 52.8%. It was observed that family history of CAD in younger age group (below 40 years) was 35.6% and in older age group (above 40 years) 24.9%.

Above all conventional risk factors are comparable to above mentioned Indian and western studies.

Present study showed, 68.9% patients in younger age group (below 40 years) had lipoprotein(a)[Lp(a)] value above normal, in older age group 47.7% patients had high value of Lp(a). Lipoprotein (a) level was higher in younger age group which is statistically significant,

and is comparable to studies like Bhattacharjee P *et al.* 2014[6], Jayesh prajapathi *et al*, in Gujarat in 2014[1].

Homocystiene levels was increased above the normal range in 66.7% patients in younger age group (below 40 years) and 66.5% in older age group (above 40 years) but no statistical significance. Hyperhomocysteinemia was found to be equally prevalent in either study groups. Elevated level homocysteine level in both age group is comparable to studies like Jayesh prajapathi *et al*, in Gujarat in 2014[1], Bhattacharjee P *et al.* 2014[6].

In present study showed hsCRP levels was increased above the normal range in 71.1% younger age group and 78.2% in older age group patients. Increased level of hsCRP in older age group was statistically significant. Elevated level of hsCRP in older age group in present study is comparable studies like Bhattacharjee P *et al.* 2014[6], Badran *et al*[7].

In present study, CAG finding shows, overall SVD was common in present study. Two VD was more common in older age group as compare to younger age group.

Study shows most common coronary artery involved was LAD 27.7%. LAD involved more commonly in younger age group (below 40 years) than older age group (above 40 years). RCA was involved in more commonly in older age group than younger age group. LM with TVD and LM with two vessel disease were common in older age group. LAD with LCX involvement was more common in older age group than younger age group. LAD with RCA was involved more commonly in younger age group than older age group.

Conclusion

It was hospital based, cross sectional observational study, comprising of 242 cases of acute ST elevation MI including both sexes aged below 40 years and above 40 years. In our acute ST elevation MI patients in age group below 40 years were 18.6% and in above 40 years age group were 81.4%.

Overall mean age of presentation of STEMI was 54.31 years. In younger age group mean age was 35.73 years and 58.55 years in above 40 years age group.

Presentation of acute STEMI was more common in male (78.9%) patients than female (21.1%).

Most common symptom was breathlessness (72.3%) in our study. In younger age group chest pain was common (71.1%), in older age group breathlessness (75.6%) was more common.

Overweight patients were more common (59.5%) in present study. Overweight patients were more commonly seen in younger age (71.1%). Obesity was common (25.9%) in older age than younger age group.

Lipoprotein (a) was significantly higher in younger age group; hsCRP was significantly higher in older age group.

AWMI was most common presentation, SVD was most common finding by CAG, SVD was more common in younger age group, multi vessel disease more common older age group.

Most common coronary artery involved was LAD 27.7% in present study; it was seen more common in younger age group than older age group. RCA was involved in more commonly in older age group than younger age group. LM with TVD and LM with two vessel diseases were common in older age group. LAD with LCX involvement was more common in older age group than younger age group. LAD with RCA was involved more commonly in younger age group than older age group.

Conflict-of-Interest Statement

Public trust in the peer review process and the credibility of published articles depend in part on how well conflict of interest is handled during writing, peer review, and editorial decision making. Conflict of interest exists when an author (or the author's institution), reviewer, or editor has financial or personal relationships that inappropriately influence (bias) his or her actions (such relationships are also known as dual commitments, competing interests, or competing loyalties). These relationships vary from those with negligible potential to those with great potential to influence judgment, and not all relationships represent true conflict of interest. The potential for conflict of interest can exist whether or not an individual believes that the relationship affects his or her scientific judgment. Financial relationships (such as employment, consultancies, stock ownership, honoraria, paid expert testimony) are the most easily identifiable conflicts of interest and the most likely to undermine the credibility of the journal, the authors, and of science itself. However, conflicts can occur for other reasons, such as personal relationships, academic competition,

and intellectual passion.

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Ethical Clearance – Informed consent and ethical clearance obtained before start this study.

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