Clinical and Coronary Angiographic Profile in Premenopausal Women with Acute Coronary Syndrome Compared With Post Menopausal Women

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Abstract:
Background: *To study the clinical presentation and coronary angiographic profile in   premenopausal women with acute coronary syndrome 2. To compare with the clinical presentation and coronary angiographic profile in postmenopausal women with acute coronary syndrome*
Method: *43 Patients with Acute Coronary Syndrome admitted in department of cardiology King George Hospital Visakhapatnam , who undergo coronary angiography as a part of investigation . Equal number of post menopausal women with acute coronary syndrome admitted during the same period was taken at random for comparison*
Results: *mean age of premenopausal women in the study is 40.6 ± 5.3 years In postmenopausal group mean age at presentation is is 61.72±6.75 Most common manifestation in ACS in pre menopausal women is chest pain which is present in 95% of patients where as in   post menopausal women 88% had chest pain   Risk factors: diabetes mellitus is present in 48.8% of cases and 51.1% of controls .Hypertension is present in 44.1%of cases and 65.1% controls . pre and post menopausal women with BMI of more than 24.9 has insignificant correlation with coronary artery disease . LDL value above 130 has significant correlation with ACS. Clinical diagnosis of USA in 32.5%   premenopausal women and 39.5% of post menopausal women .Aanterior wall MI in 39.5% of pre menopausal women, 20.9% of post menopausal women .Iinferior wall MI in 11.6% of pre menopausal women and 25.5% of post menopausal women .Coronary angiographic profile revealed SVD in both groups and the difference is insignificant . TVD is found in 34.8% of post menopausal women*
Conclusions: *Most premenopausal women develop acute coronary syndromes in their third and fourth decade close to menopause and often present with chest pain .hypertension is less common in premenopausal women, diabetes is no different in pre and post menopausal women. LDL is significantly lower in pre menopausal women. Smoking is rare in women. No significant difference in BMI exists. Single vessel disease is common in both groups . whereas Triple vessel disease in post menopause women.*
Keywords: *CAD coronary artery disease ACS acute coronary syndrome BMi body mass index LDL low density lipoprotein USA unstable angina*

I.   Introduction

Ischemic heart disease is the leading cause of death in women but is still identified less often and at a more advanced stage ,and treated less aggressively compared with that in men[4] . women with IHD also have a worse prognosis than men suggesting gender related differences in disease detection and treatment .There exists at least three problems symptoms recognition ; women have higher frequency of chest pain than men yet have lower prevalence of epicardial coronary stenosis Diagnostic testing : rest and exercise induced ECG changes are often false positive.effects of fluctuating estrogen levels on vascular smooth muscle and coronary artery vasomotion have been postulated as explationsfor why women have a higher frequency of chest pain and more frequent false positive stress test results in the absence of coronary artery disease compared with men . historically fewer women than men have been included in studies on CHD , the consequence is that evidence base for several treatments is less firm[6,7,8] . lack of gender specific knowledge has emerged as an important issue in the management of CAD

II.   Material And Methods

43 Patients with Acute Coronary Syndrome admitted in department of cardiology King George Hospital Visakhapatnam between January 2010 to February2012, who undergo coronary angiography as a part of investigation Equal number of post menopausal women with acute coronary syndrome admitted during the same period was taken at random for comparison.

Inclusion Criteria

Patients who fulfill following criteria were included

lschemic symptoms with either ECG changes or elevated biochemical markers of myocardial damage.

ECG changes indicative of ischemia or infarction (ST elevation or depression)

Development of pathologic Q waves on the ECG

New onset LBBB

In the absence of ECG changes or elevated bio markers . Pain occurring at rest or minimal exertion and lasting >20 min pain occurring with a crescendo pattern

Exclusion Criteria

Patients with hysterectomy post PCI acute coronary syndrome post CABG acute coronary syndrome Patients on OC pills Stable angina Valvular heart disease . Suspected unstable angina without ECG changes & normal epicardial coronaries on coronary angiography Refused consent for coronary angiography . Patients in whom angiography could not be done safely

Baseline Assessment

History, Physical examination, cardiovascular examination as per t proforma were done in all patients . Risk factors like diabetes mellii hypertension, smoking, obesity, and family history of coronary artery disc were assessec

Investigations

Routine hematological evaluation , Random blood Glucose & fasting glucose. Serum creatinine, Lipid profile (LDL >130) Cardiac enzymes ,ECG was taken in all patients . BMI (>25 kg/m2), Echocardiography was done in all patients & controls using Philips iE33 , ejection fraction was calculate by M mode average of three values was taken ,regional wall motion abnormalities were noted . Coronary angiogram between 3-5 days after presentation (SEMENS AXIOM ARTIS

Statical Analysis

(All continuous variables were expressed as mean and standard deviation , where as the categorical variables were expressed as numbers with percentages .Results were expressed in the form of tables and charts **.** Relevant tests like mean t test slandered deviation and correlation analysis was done.

III. Results:

Mean age of premenopausal women in the study is 40.6 ± 5.3 years majority of women are between 41-50 years 48.8% next is between 31-40 years 41.8% .In postmenopausal group mean age at presentation is is 61.72 ± 6.75 years .

Most common manifestation in ACS in pre menopausal women is chest pain which is present in 95% of patients where as in post menopausal women 88% had chest pain shortness of breath in pre menopausal women is 4.6% ,in post menopausal women chest pain accounting for 11.6%

Risk factors: diabetes mellitus is present in 48.8% of cases and 51.1% of controls , the difference is statistically insignificant

Hypertension is present in 44.1%of cases and 65.1% of controls , statistically significant

Smoking is distinctly very low , BMI of premenopausal women is 23.8 ± 3.36 where as for post menopausal women mean BMI is 23.98 ± 3.79 preand post menopausal women with BMI of more than 24.9 has insignificant correlation with coronary artery disease $p >0.05$

Mean LDL cholesterol of pre menopausal women is 122 ± 26.6 and post menopausal women is 142.3 ± 32.2 LDL value above 130 has significant correlation with ACS with p value <0.001 : . Clinical diagnosis of USA 32.5% premenopausal women 39.5% of post menopausal women anterior wall MI 39.5% of pre menopausal women 20.9% of post menopausal women inferior wall MI in 11.6% of pre menopausal women 25.5% of post menopausal women non STEMI in 11.6% of both groups posterior wall mi and high lateral MI is 2 ,1 patients respectively

Coronary angiographic profile in pre menopausal women is revealed 55.8% of SVD and in post menopausal women 37.2% without statistical significance p value >0.05 . TVD is found in 34.8% of post menopausal women and the difference from premenopausal women reached statistical significance ; p value <0.05 2VD is found 6 premenopausal women (13.9%) in post menopausal women 7 patents had 2VD 25% of lesions are insignificant in pre menopausal women

IV. Discussion

Pre menopausal women with acute ischemia have both typical chest pain 79% and atypical chest pain 17%. Postmenopausal women had typical chest pain in 67% and atypical chest pain in 11%. Milner et al showed that age had higher impact on the prevalence of chest pain. In the youngest 73.1% of pre menopausal women experienced chest pain compared to 45.5% of older women[10]. Canto et al also supported difference in chest pain prevalence[2]. A review by Patel et al found differences in prevalence of chest pain but the differences were small and most often non-significant[1]. Methot j et al reported no differences in terms of the frequency of reported typical symptoms of ACS between pre and post menopausal women[11]. In our study chest pain including typical and atypical combined together is present in 95% of Pre-M women and 88% in post menopausal women.

Risk factor for coronary artery disease, diabetes mellitus is prevalent in both groups, pre menopausal women had 48% and post menopausal women had 51 %. Without significant difference .Diabetes leads to higher incidence of CAD so female advantage is lost. Zhang et at reported that the Pre-menopausal women with CAD, compared with post menopausal women with CAD had significantly fewer traditional risk factors[3], such as hypertension, diabetes and hypercholesterolemia. In our study DM was present in 48% of Pre — M women and 51% of post- M women without significant difference (P= >0.05) In - our study hypertension is significantly higher in post menopausal women 28(65.1%) compared to 19 (44.1%) pre menopausal women with a P value less than 0.05 and the difference may be due to age associated increased prevalence of hypertension among post menopausal women. where as Zhang et at reported no significant difference in Hypertension between pre and post menopausal women[3]. Irrespective menopausal status smoking is uncommon in women .The antiestrogenic effect of smoking has been proposed as an explanation for the higher risk associated with smoking in women, besides effects on atherosclerosis and haemostasis. Only 3 pre menopausal women (6.9%) and 4

Post menopausal women (9.3%) are smokers. Which is similar to the CDC evaluation of smoking in Asian women (6.1%). Mokdad at al showed that obesity is an independent risk factor for the development of CAD in premenopausal women[12]. With P = 0.028 which is Statistically significant but in our study Pre and post menopausal women With go of more than 24.9 had insignificant difference P > 0.05. Elevated LDL levels above 130 mg/dl is present in 34.8% of Premenopausal women compared with 69% in post menopausal women with P value <0.001 which is statistically significant. whereas Shai I et al . reported no difference in LDL between Pre and Post menopausal women[9] (50% vs 59%) Coronary angiographic profile of premenopausal women showed single vessel disease in 55.8% vs. 37.2% in post menopausal women with a P>0.05 which is statically insignificant. Dou et al reported single vessel disease in premenopausal women in 43.2% vs. 26.9% in post menopausal women with P value <0.05. Pre menopausal women have triple vessel disease in 16.2 % vs.

34.8% in post menopausal women with p <0.001 which is statically highly significant. Similar to the previous study by Shaw U et al, triple vessel disease in postmenopausal women present in 33.8% vs. 20.4%[5]. For left main disease no significant difference exists between pre and post menopausal women (13.9% vs. 11.6%). Insignificant lesions are found in 25% of pre menopausal women vs. 13.9% of post menopausal women.

V. Conclusions

1. Most premenopausal women develop acute coronary syndromes in their third and fourth decade closer to menopause.
 2. Premenopausal women with acute coronary syndromes most often present with chest pain which includes typical and atypical chest pain.
 3. Risk factor for coronary artery disease, hypertension is less common in premenopausal women, diabetes is no different in pre and post menopausal women. LDL is significantly different in pre and post menopausal women.
 4. Smoking as a risk factor is distinctly rare in women.
 5. No significant difference in BMI in pre menopausal and post menopausal women with acute coronary syndrome exists.
6. Most common presentation is unstable angina followed by anterior wall myocardial infarction.
7. Single vessel disease is common in pre menopause women.
8. Triple vessel disease common in post menopause women.

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