

Comparative study of coronary artery disease in asymptomatic perimenopausal and postmenopausal women

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Abstract

A randomised study was carried out in a tertiary health care hospital to study risk factors and incidence of Coronary Artery disease in 100 peri menopausal and post menopausal women. Out of 100 patients 71 patients were postmenopausal while 29 were premenopausal. 48 patients had abnormal ECG findings, out of which 31 patients were from postmenopausal group, while 17 were from perimenopausal group. Out of these 48 patients having abnormal ECG changes 6 patients were positive for treadmill stress test. All were postmenopausal. While patients with abnormal 2D-ECHO findings were from both perimenopausal as well as postmenopausal group. Out of various risk factors found in this study waist to hip ratio >0.8, age \geq 55 years were most commonly observed. Other common risk factors noted were obesity, hypertension and dyslipidemia. Diabetes and tobacco chewing was seen in lesser number of patients.

Key Words: Perimenopausal, postmenopausal, Treadmill stress test.

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INTRODUCTION

Heart disease is the first killer of women in the modern era, regardless of age, race and of ethnicity, although its prevalence rises after menopause. Modern women have professional and housewife responsibilities, consume excess of fat and carbohydrates, smoke, do not exercise regularly and do not have enough time to rest. This situation leads to overweight, dyslipidemia, arterial hypertension, impaired glucose tolerance and diabetes. Coronary heart disease is assuming serious dimension in developing countries. It is expected to be the single most

important cause of death in india by the next 5 years. Although many women and their physicians underestimate the risk. A randomised study was carried out in a tertiary health care hospital to study risk factors and incidence of Coronary Artery disease in 100 peri menopausal and post menopausal women.

MATERIAL AND METHODS

Study Design: A randomized case study was carried out in a tertiary health care hospital. 100 asymptomatic perimenopausal and postmenopausal women of age 40 to 70 years were evaluated for evidence of coronary heart disease. Women with history of coronary artery disease and valvular heart disease were excluded from the study. Each patients history included family history of coronary artery disease, history of smoking or tobacco chewing, physical activities and job details. Physical examinations included measurement of weight, waist to hip ratio, body mass index and blood pressure. All the patients underwent routine biochemical investigations, 12 Lead ECG, 2D echo cardiography including heart chambers dimensions and ejection fraction. All patients were

subjected to treadmill - stress testing by modified Bruce protocol.

RESULTS

The common risk factors observed in this study were waist to hip ratio more than 0.8 in 53 patients, followed by age \geq 55 years noted in 48 patients, obesity in 29 patients, hypertension in 17 patients and dyslipidemia in 16 patients. In the present study we observed 48 patients with abnormal ECG findings. These abnormal ECG changes were in the form of ST-segment depression, T wave inversion, left ventricular hypertrophy along with ST-segment depression, ventricular premature complexes, left bundle branch block. It was observed that, 6 patients had positive treadmill stress test.

Table 1: Distribution of patients according risk factors

Risk factor	Total of patients	Single risk factor	Multiple risk factors
hypertension	17	5	12
Diabetes mellitus	5	1	4
Obesity	29	8	21
Smoking/tobacco chewing	6	2	4
Dyslipidemia	16	4	12
Waist-hip ratio>0.8	53	24	29

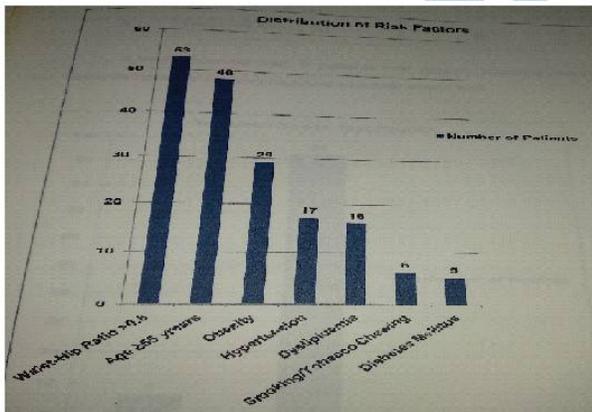


Figure 1:

Table 2: Showing various abnormal ECG findings in various age group

Age group	40-49 years Years	50-59 years	60-70 Years	Total
LVH with ST-Depression	2	1	3	6
LBBB	0	0	1	1
T-inversion	9	3	4	16
ST-depression	11	8	5	24
VPCS	0	0	1	1
Total	22	12	14	48

Table 3: Age-wise distribution of abnormal 2D ECHO Findings:

Age group [years]	Akinesia	Dyskinesia of IVS with diastolic dysfunction	Regional wall motion abnormality	LVH with diastolic dysfunction	LVH
40-49	0	0	0	0	2
50-59	0	0	0	0	2
60-70	0	1	0	2	0

Table 4: Results of treadmill stress test

Sr. No.	interpretation	No of patients
1	Positive stress test	6
2	Negative stress test	94

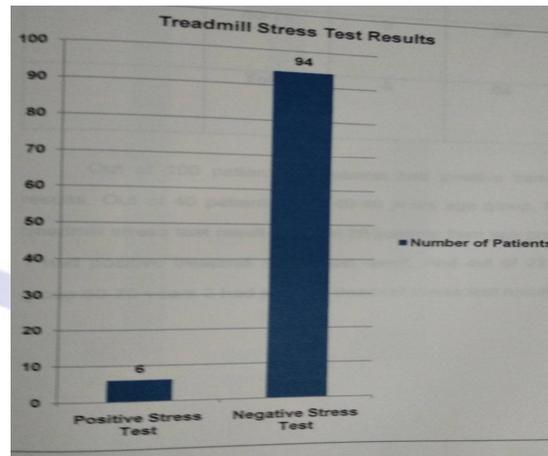


Figure 2:

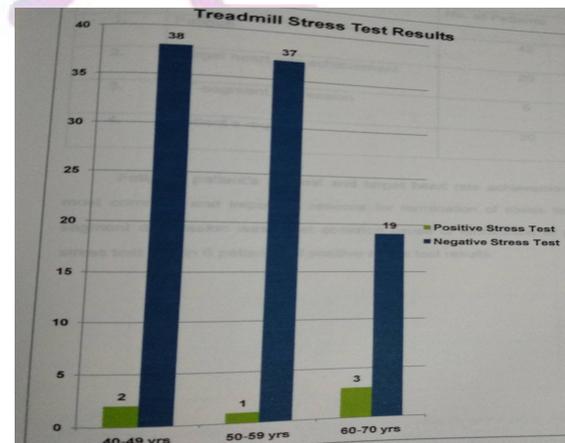


Figure 3:

Table 5: Treadmill stress test results with reference to age

Sr. no	Age [years]	positive	negative	Total
1	40-49	2	38	40
2	50-59	1	37	38
3	60-70	3	19	22
	Total	6	94	100

Table 6: Positive treadmill stress test results in association with various risk factors

Sr. no	Risk factors	Total number of patients
1.	Hypertension	2
2.	Diabetes mellitus	2
3.	Obesity	1
4.	Tobacco chewing	0
5.	Dyslipidemia	1
6.	WC/HC>0.8	4
7.	Age>55 years	3

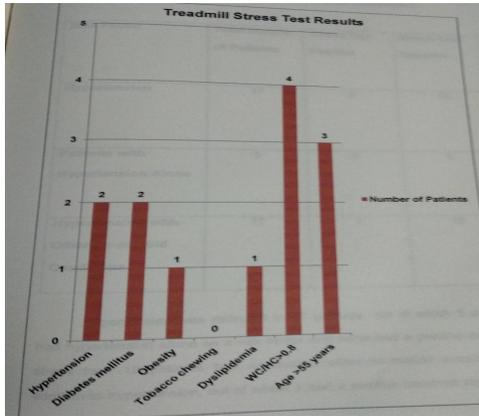


Table 7: Positive treadmill-stress test results in perimenopausal and postmenopausal women

Treadmill stress test result	Peri-menopausal women	Post-menopausal women	Total
Positive	0	6	6
Negative	29	63	92
Total	29	69	98

$\chi^2 = 2.68, P > 0.05$

In this study we observed that 6 patients were positive for treadmill stress test. Out of these 6 patients all were from postmenopausal age group. There was no significant difference observed between the number of asymptomatic females with positive treadmill stress test in the perimenopausal and the postmenopausal age groups ($p > 0.05$). Out of these 6 patients positive for treadmill stress test, in which we did 2D-ECHO, 1 patients had left ventricular diastolic dysfunction with left ventricular dilatation, 1 patients had dilated hypertrophied left ventricle with normal function, 2 patients had normal 2D-ECHO findings.

DISCUSSION

In the present study 71 patients were in postmenopausal group, while 29 patients were in perimenopausal group. In the present study, out of 100 patients, 5 (5%) patients were diabetic, 17 (17%) patients were hypertensive, 29 (29%) were obese, 16 (16%) were having dyslipidemia and 6 (6%) were tobacco chewers. In the study conducted by Tandon *et al*¹, 21% patients were diabetic, 56%

hypertensive, 78% obese, 39% with dyslipidemia, and 4% were tobacco chewers and 0.5% were smokers. This difference in observations may be because of inclusion criteria, as they included only postmenopausal women as study group, along with prior history of diabetes mellitus and hypertension, and these two co-morbid conditions are found to co-exist with the other risk factors of CAD like dyslipidemia, obesity and tobacco addiction, in many patient.

CONCLUSIONS

1. Commonest coronary artery disease risk factors in asymptomatic perimenopausal and postmenopausal women were waist to hip ratio > 0.8 , age ≥ 55 years and obesity in the present study.
2. Diabetes and tobacco chewing were the least common risk factors observed.
3. It is observed that some perimenopausal and postmenopausal patients with an underlying coronary artery disease as suggested by an abnormal treadmill stress test and/or 2D ECHO findings may remain asymptomatic. In the present study 6 postmenopausal women were found to have subclinical coronary artery disease as compared to perimenopausal women where it was nil. But the difference was statistically insignificant ($p > 0.05$). Screening of peri and post menopausal women for coronary artery disease is advisable time to time. Treating the risk factors, early detection and treatment of coronary artery disease will prevent the further morbidity and deaths of women. Women and their physicians should not underestimate the risk factors.

REFERENCES

1. Tandon VR, mahajan A, Sharma s, Sharma A. prevalence of cardiovascular risk factors in postmenopausal women, A rural study. J Mid-life Health 2010; 1:26-9.
2. Enas EA, senthikumar A, juturu V, Gupta R. Coronary artery disease in women. Indian Heart J 2001; 53:282-292.
3. Michos ED, nasir K, Braunstein JB, Rumberger JA, Budoff MJ, post WS, et al. Framingham risk equation underestimates subclinical atherosclerosis risk in asymptomatic women. Atherosclerosis. 2006 Jan; 184(1): 201-6.
4. Mora s, Redberg RF, Cul Y, et al. ability of exercise testing to predict cardiovascular and all-cause death in asymptomatic women; a 20-years follow-up of the lipid research clinics prevalence study JAMA. 2003;290(12): 1600-1607, pmid: 41506119
5. Gupta R, Gupta VP, saran M, bhatnagar S, thanvi J, Sharma V, et al. prevalence of coronary heart diseases and risk factors in an urban Indian population: jaipur heart watch-2. Indian heart J. 2002 jan-feb; 54(1): 59-66.

6. Wackers FJT, young LH, Inzucchi SE, et al. Detection of silent myocardial ischemia in asymptomatic diabetic subjects: the DIAD study Diabetes care 2004; 27:1954-1961.
7. Nayak KC. Gett SS, sharda DP, misra SN. Treadmill exercise testing in asymptomatic chronic smoken to detetct latent coronary heart disease. Indian heart j, 1989 jan-Feb; 41(1), p.62-5.
8. Sekuri C. Eser E. Akpınar G, carki H, Sitti I, Gulomur O, et al. cardiovascular disease risk factors in post-menopausal women west Anatolia., Jpn Heart j. 2004 jan; 45(1). P. 119-31.
9. Park K. Textbook of Preventive and social medicine. 21st ed Jabalpur: Banarsidas Bhanot; 2011. P.339.
10. Antman EM, shlwyn AP, Loscalzo J. Ischemic Heart Disease. Longo DL, kasper DL, Jameson JL, Fauci AS, Hauser SL, Loscalzo J, editors. Harrison's McGraw-Hill companies; 2011.p.1998-14.

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