Risk Factors of Myocardial Infarction in Pre and Post Menopausal Women

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ABSTRACT

Introduction: Cardiovascular disease is the leading cause of death among women, regardless of race or ethnicity, accounting for deaths of 1 in 3 women. Mortality rates for coronary heart disease have fallen for both men and women but the rate of fall is much less in women than men. Current research aimed to study the risk factors for acute myocardial infarction between pre and post-menopausal women.

Material and Methods: All patients satisfying the diagnosis of myocardial infarction were included in the study. A detailed evaluation of patients presenting with acute myocardial infarction was done. Clinical presentations, risk factors, vitals, Killip functional classification, ECG were recorded.

Results: In the premenopausal, maximum incidence of MI occurs between 35 to 45 years, in postmenopausal maximum incidence of MI occurs between 51 to 60 years. The most common infarction is anterior wall myocardial infarction which is very common in postmenopausal patients also and next common site in inferior wall MI. Left ventricular failure is 15.6% in premenopausal group and 41.2% in postmenopausal group. Mortality was 6.3% in premenopausal group and 10.3% in postmenopausal group.

Conclusion: Coronary artery diseases in women continue to be a major public health problem that represents a leading cause of death and disability. The presence of risk factors was high among premenopausal women than postmenopausal.

Keywords: Women Health, Menopause, CAD

INTRODUCTION

Acute myocardial infarction is continuous to be a major public health problem in both in developing and developed countries despite impressive strides in the diagnosis and management. Coronary care practice is nowadays better equipped than other fields of cardiovascular medicine to reduce the morbidity and mortality.[1] New therapies for acute myocardial infarction are being evaluated not only for evidence of safety and efficacy but also for their cost-effectiveness in caring for patients and their impact on quality of life. For the past four decades, male gender has been attributed to the major nonmodifiable risk factor for coronary artery disease. Nowadays the incidence of acute myocardial infarction is increasingly reported in women even in developing countries.[2] The cardiovascular anatomy and physiology of women differ from men in many ways. Women have comparatively smaller chests, hearts and different body structure and fat distribution. Their cardiovascular system is designed to adapt to the extraordinary demands of pregnancy and childbirth. The coronary artery diameter is smaller in Asian's, still smaller in Indian women compared to the western population.

Before the age of 40 men are affected more than women by the overall ratio of 8:1. However, beyond 70 years the ratio is 1:1.[3] In this century cardiovascular disease has been the most common cause of death and disability in women of all ethnic and racial groups. The prevalence of cardiovascular disease in women increases dramatically with age. Men and women with CAHD demonstrate striking differences in epidemiology diagnosis, treatment, prognosis, and prevention. More women present with myocardial infarction and rarely have sudden death. The incidence of coronary artery disease in Indian women is increasing nowadays. This might be due to social factors, lack of physical exercise, food habits, repeated childbirth, and anemia. They seek medical advice late due to religious, social, environmental and economical factors. They experience more complications and mortality following acute myocardial infarction. They derive less benefit from medical or surgical therapy and experience more complications. Many aspects of women's response to acute myocardial infarction reflect gender rather than biologic differences.[4] Although western women seek medical care more often than men, a women presentation, style alters physicians' estimates of the likelihood of coronary artery disease. Effect of hormone replacement therapy in post-menopausal women is uncertain some observational studies suggest that estrogen replacement protects against the incidence of coronary artery disease. Prospective control trials have not yet confirmed the beneficial effect of hormone replacement therapy. Hormone replacement therapy shows no beneficial effect in reducing the morbidity and mortality both in western and Indian studies.[5-6]

Current research aimed to study the risk factors for acute myocardial infarction between pre and post-menopausal women.

MATERIAL AND METHODS

This prospective observational study was conducted in Department of Medicine at Tirunelveli Medical College. All patients satisfying the diagnosis of myocardial infarction

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Site	Premenopausal		Postmenopausal	
	Frequency	Percentage	Frequency	Percentage
Anterior wall	14	43.75%	36	52.94%
Inferior wall	13	40.62%	16	23.52%
Anteroseptal	5	15.62%	15	22.05%
Lat wall	0	0%	1	2.63%
Table-1: Distribution of site of MI				

Risk factors	Premenopausal		Postmenopausal	
	Frequency	Percentage	Frequency	Percentage
DM	15	46.87%	31	45.58%
HTN	14	43.75%	21	30.88%
Hyperlipidemia	15	46.87%	27	39.70%
Obesity	11	34.37%	16	23.52%
Table-2: Distribution of Risk factors				

Complication	Premenopausal		Postmenopausal	
	Frequency	Percentage	Frequency	Percentage
LV failure	5	15.62%	28	41.17%
Death	2	6.25%	7	10.29%
Table-3: Distribution of Complication				

were included in the study. A detailed evaluation of patients presenting with acute myocardial infarction was done. Clinical presentations, risk factors, vitals, Killip functional classification, ECG were recorded. Serial ECG, routine biochemical analysis and required other lab procedures were done.

STATISTICAL ANALYSIS

Microsoft office 2007 was used for the analysis. Descriptive statistics like mean and percentages were used for the analysis.

RESULTS

100 female patients were included in this study, 32 premenopausal and 68 postmenopausal women. Commonest symptom is typical chest pain. Duration of chest pain to hospitalization varies between 2 to 72 hours. In the premenopausal group maximum incidence of MI occurs between 35 to 45 years, 23 cases out of 32 cases. In the post menopausal group maximum incidence of MI occurs between 51-60 years, 32 cases out of 68 patients, accounting to 47%. DM found 45.6% in postmenopausal and 46.8% in premenopausal. The most common infarction is anterior wall myocardial infarction which is very common in postmenopausal patients also and next common site in inferior wall MI (table-1). Among premenopausal women 46.8% had elevated total cholesterol, 39.7% had elevated total cholesterol in postmenopausal. 43.8% of premenopausal women and 30.9% of postmenopausal women were found hypertensive in this study. In premenopausal 34.4% and in postmenopausal 23.5% women were found obese (table-2). Left ventricular failure is 15.6% in premenopausal group and 41.2% in postmenopausal group. Mortality was 6.3% in premenopausal group and 10.3% in postmenopausal group (table-3).

DISCUSSION

The American Heart Association reports the signs and symptoms of MI with no distinction between women and men. These are uncomfortable pressure, fullness, squeezing, or pain in the center of the chest, pain that spreads to shoulders neck or arms, chest discomfort with lightheadedness, fainting, sweating, nausea, or shortness of breath.[7] McCance and Huether (1998) describe the typical symptoms of MI as chest pain that is heavy or crushing, chest pain with nausea and/or vomiting, diaphoresis, shortness of breath, or radiation to neck, jaw, back, or left-arm.[8] Patients may complain of a feeling of weakness, severe indigestion, shortness of breath, or chest discomfort (Lewis and Collier, 1992).[9] In our study most of the women presented with characteristic features of MI, the post common presenting symptom was chest pain. Menopause, permanent cessation of menstruation following loss of ovarian activity, has considerable impact on social, reproductive, physical and psychological health. Women in India are prone to an earlier menopause[10] and all its implications on their health at an earlier age than their counterparts in the industrialized world. Estrogen has protective effects on the cardiovascular system due to which there is an increase in the prevalence of cardiovascular diseases in postmenopausal women. Estrogen also has a favorable impact on body fat distribution and improvement in the insulin sensitivity.[11] Cardiovascular disease is one of the leading causes of death in women.[12] The incidence of myocardial infarction in women, although lower than in men, increases dramatically after menopause, which can be attributed mainly to the lack of estrogen and its direct and indirect cardio-protective effects.

CONCLUSION

Coronary artery diseases in women continue to be a major public health problem that represents a leading cause of death

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and disability. Acute myocardial infarction was less common in premenopausal women than in postmenopausal women. The prevalence of risk factors are high among premenopausal women than post menopausal women. The mortality is high in postmenopausal women than in premenopausal women.

REFERENCES

1. Dorairaj Prabhakaran, Panniyammakal Jeemon. Cardiovascular Diseases in India; Current Epidemiology and Future Directions. Circulation 2016;133:1605–1620.
2. Joshi P, Islam S, Pais P, Reddy S, Dorairaj P, Kazmi K, et al. Risk factors for early myocardial infarction in South Asians compared with individuals in other countries. JAMA. 2007;297:286–294.
3. Xavier D, Pais P, Devereaux PJ, Xie C, Prabhakaran D, Reddy KS, et al. Create registry investigators. Treatment and outcomes of acute coronary syndromes in India (CREATE): a prospective analysis of registry data. Lancet. 2008;371:1435–1442.
4. Yusuf S, Rangarajan S, Teo K, Islam S, Li W, Liu L, et al. PURE Investigators. Cardiovascular risk and events in 17 low-, middle-, and high-income countries. N Engl J Med. 2014;371:818–827.
5. Prabhakaran D, Yusuf S, Mehta S, Pogue J, Avezum A, Budaj A, et al. Two year outcomes in patients admitted with non-ST elevation acute coronary syndrome: results of the OASIS registry 1 and 2. Indian Heart J. 2005;57:217–225.
6. Anjana RM, Ali MK, Pradeepa R, Deepa M, Datta M, Unnikrishnan R, et al. The need for obtaining accurate nationwide estimates of diabetes prevalence in India – rationale for a national study on diabetes. Indian J Med Res. 2011;133:369–380.
7. Amsterdam EA, Wenger NK, Brindis RG, Casey DE Jr, Ganiats TG, Holmes DR Jr, et al. 2014 AHA/ACC guideline for the management of patients with non-ST-elevation acute coronary syndromes: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation. 2014;130 (25):e344-426.
8. McCance, K., and Huether, S. (1998). Pathophysiology: The biologic basis for disease in adults and children (3rd ed.). St Louis, MO: Mosby Year-Book Inc.
9. Lewis, S., and Collier, I. (1992). Medical-Surgical nursing: Assessment and management of clinical problems (3rd ed.). St. Louis, MO: Mosby-Year Book Inc.
10. Bagga A. Age and symptomatology of Menopause: A case study. Obstet Gynaecol Today. 2004;10:660–6. Willett W, Stampfer MJ, Bain C, Lipnick R, Speizer FE, Rosner B. Cigarette smoking, relative weight and menopause. Am J Epidemiology. 1983;117:651.
11. Papadopoulou SA, Kaski JC. Ischemic heart Disease in the Aging Woman. Best Practice and Research Clinical Obstetrics and Gynaecology. 25 March 2013
12. Roger VL, Jacobsen SJ, Pellikka PA, Miller TD, Bailey KR, Gersh BJ. Gender differences in use of stress lasting and coronary disease mortality: A population based study in Olmsted country, Minnesota. J Am Coll Cardiol. 1998;32:345.

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