



## Risk of heart disease in postmenopausal women in sagar division of bundelkhand: a study

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### ABSTRACT

The present observational, cross-sectional prospective study was conducted during the period of 1 year in Bundelkhand Medical College (BMC) to study prevalence of conventional cardiovascular disease risk factors (CVRFs) in postmenopausal women.

### INTRODUCTION:

The global burden of cardiovascular diseases (CVDs) is rapidly increasing. CVD is the leading cause of death in women around the world. Hypertension affects more men than women until 55 years of age, but after age 55, the percentage of women is higher. Estrogen deficiency has been linked to the rapid increase in CVD in women who have undergone natural or surgical menopause very year, CVD claims the lives of females more than males [1]. More than 450,000 women succumb to heart disease annually, and 250,000 die of coronary artery disease [2]. CVD risk increases after the menopause, which may be related to metabolic and hormonal changes [3].

Menopause is a risk factor for CVD because estrogen withdrawal has a detrimental effect on cardiovascular function and metabolism. The menopause compounds many traditional cardiovascular disease risk factors (CVRFs), including changes in body fat distribution from a gynoid to an android pattern, reduced glucose tolerance, abnormal plasma lipids, increased blood pressure, increased sympathetic tone, endothelial dysfunction, and vascular inflammation [4-6].

Cardiovascular risk is poorly managed in women, especially during the menopausal transition when susceptibility to cardiovascular events increases. Clear gender differences exist in the epidemiology, symptoms, diagnosis, progression, prognosis, and management of cardiovascular risk. The key risk factors that need to be controlled in the perimenopausal woman are

hypertension, dyslipidemia, obesity, and other components of the metabolic syndrome, with the careful control of diabetes. Hypertension is a particularly powerful risk factor and lowering of blood pressure is pivotal. Hormone replacement therapy (HRT) is acknowledged as the gold standard for the alleviation of the distressing vasomotor symptoms of the menopause, but the findings of the Women's Health Initiative (WHI) study generated concern for the detrimental effect on cardiovascular events. Thus, HRT cannot be recommended for the prevention of CVD. Whether the findings of WHI in older postmenopausal women can be applied to younger perimenopausal women is unknown. It is increasingly recognized that hormone therapy is inappropriate for older postmenopausal women no longer displaying menopausal symptoms. Both gynaecologists and cardiovascular physicians have an important role to play in identifying perimenopausal women at risk of cardiovascular morbidity and mortality, and should work as a team to identify and manage risk factors, such as hypertension. Although studies [7-9] regarding CVRFs are available in Indian population. However, not much of the information is available regarding the prevalence of CVRFs in postmenopausal women. Hence, this study was undertaken to study prevalence of conventional CVRFs in postmenopausal women.

### MATERIALS AND METHODS

This observational, cross-sectional prospective study was conducted during the period of 1 year (JAN 2010 to DEC 2010) in BMC. A total of 600 consecutive postmenopausal women

(cessation of menstruation for 1 year) were screened by principal investigator with help of general physician in outpatient department for detailed information regarding common menopausal symptoms, the presence or absence of conventional CVRFs, namely hypertension, diabetes mellitus, dyslipidemia, obesity, metabolic syndrome, tobacco chewing, and family history of premature heart disease; duration of these CVRFs and any treatment if taken for the same. Height, weight, body mass index (BMI), waist circumference, waist-hip ratio (WHR), blood pressure, and measurement were performed in all. Biochemical tests including fasting and 2 h postprandial blood sugar estimation, fasting lipid profile. Physical activity was measured by asking about both work-related and leisure-time activities, and dietary lifestyle was also assessed. Hypertension was diagnosed when systolic BP was  $\geq 140$  mmHg and diastolic BP was  $\geq 90$  mmHg or a person was a known hypertensive. BMI was calculated as weight in kilograms divided by square of height in meters and overweight and obesity defined as  $\text{BMI} \geq 25 \text{ kg/m}^2$ . Truncal obesity was diagnosed when  $\text{WHR} > 9$  in males, and  $> 8$  in females while abdominal obesity was diagnosed when waist size  $> 102$  cm in men and  $> 88$  cm in women as per the US National cholesterol education program (NCEP) guidelines. Dyslipidemia was defined by the presence of high TC ( $\geq 200$  mg/dL), high LDL ( $\geq 130$  mg/dL), low HDL ( $< 40$  mg/dL) or high TG ( $\geq 150$  mg/dL) according to NCEP guidelines. Metabolic syndrome was also diagnosed according to NCEP guidelines when any three of the five identifying risk factors [abdominal obesity, fasting glucose  $> 110$  mg/dL or diabetes,  $\text{BP} \geq 130/90$  mmHg, low HDL (men  $< 40$  mg/dL, women  $< 50$  mg/dL), or high TG ( $\geq 150$  mg/dL)] were present. Physical activity was measured by asking about both work-related and leisure-time activities [10-11]. Use of Hormonal replacement therapy (HRT) and other drugs were also noted. The same information was collected from the patient's case record sheets. ECG and Treadmill stress test (TMT) were advised only in few. Knowledge regarding their menopause was also assessed.

## RESULTS

Mean age at menopause was 50.01 years, Mean number of menopausal symptoms was  $7.30 \pm 4.50$ , and mean duration since menopause was (MDSM = 4.90 years). Fatigue, lack of energy (81%), cold hand and feet, rheumatology-related symptoms (30%) cold sweats, weight gain, irritability, and nervousness (59%), palpitation of heart, excitable/anxiety (47%) each were common complaints. Hypertension was diagnosed or a person was a known hypertensive (51%). Diabetes was diagnosed or a person was known diabetic in 25%, and BMI was found to be  $25 \text{ kg/m}^2$  in 56%. Truncal obesity with waist-hip ratio  $> 0.8$  in 52% females, whereas abdominal obesity with waist size  $> 88$  cm was in 48% women. Dyslipidemia was seen in 41%. It was defined by the presence of high TC ( $\geq 200$  mg/dL) in 32%, high LDL-c ( $\geq 130$  mg/dL) in 26%, low HDLc ( $< 40$  mg/dL) in 20% or high TG ( $\geq 150$  mg/dL) in 49%. Metabolic syndrome was present in 9% of cases tobacco chewing (34%) and family histories of premature heart disease (11%) were recorded. Lifestyle was active in 70%, hectic in 21%, and sedentary in 9% of postmenopausal women (PMWs) (Table 1). Only 0.5% of women were receiving HRT, 0.4% isoflavone-containing phytoestrogens, 29% anti-HT, 15% anti-diabetic, 15% lipid-lowering drugs. Out of 70 patients, who were advised for electrocardiography (ECG), 21 were found positive for ischemic changes on ECG and out of 13 women advised for TMT, only 5 were found positive for ischemic heart disease (IHD). Risk factor count of more than four was found in 12%. Over all 91% of women were affected by menopause or related

**Table 1: Demographic and Clinical Characteristics**

• Clinical Characteristics	• Outcome
• Mean Age at Menopause	• 50.01 Years
• Mean Number of Menopausal Symptoms	• $7.30 \pm 4.50$
• Mean Duration since Menopause Education Status	• 4.90 Years
• Literate	• 11%
• Illiterate	• 89%
• Life Style	•
• Active	• 70%
• Hectic	• 21%
• Sedentary	• 9%

**Table 2: Cardiovascular Risk Factors In Postmenopausal Women**

Hypertension	51%
Diabetes	25%
BMI $> 25 \text{ Kg/M}^2$	56%
Truncal Obesity With Waist Hip Ratio (WHR) $> 0.8$	52%
Abdominal Obesity With Waist Size $> 83 \text{ CM}$	48%
Dyslipidemia	41%
High TC ( $> 200 \text{ mg/dL}$ )	32%
High LDL c ( $> 130 \text{ mg/dL}$ )	26%
Low HDL c ( $< 40 \text{ mg/dL}$ )	20%
High TG ( $> 150 \text{ mg/dL}$ )	49%
Metabolic Syndrome	9%

**Table 3: Drug History**

Women Receiving HRT	0.5%
Isofavone containing phytoestrogens	0.4%
Anti-HT	29%
Anti Diabetics	15%
Anti Anginal	9%
Anti Platelet	12%
Lipid Lowering Drugs	15%
of and on NSAIDs	70%
Multivitamins Antioxidants	81%
Antacids , H2 Blockers & PPIs	55%
Others	10%

problems (Table 2 and 3).

## CONCLUSION

This study showed alarmingly high prevalence of most of the conventional CVRFs, especially diabetes, hypertension, dyslipidemia, obesity, and other risk factors in postmenopausal

women from rural areas.

## REFERENCES

1. Harrison-Bernard LM, Raij L. Postmenopausal hypertension. *Curr. Hypertens. Rep.* 2000;2:202207.
2. Giardina EG. Heart disease in women. *Int. J. Fertil. Womens Med.* 2000;45:350357.
3. Zárate A, Saucedo R, Basurto L, Martínez C. Cardiovascular disease as a current threat of older women. Relation to estrogens. *Ginecol Obstet Mex.* 2007;75:286292.
4. Rosano GM, Vitale C, Marazzi G, Volterrani M. Menopause and cardiovascular disease: The evidence. *Climacteric.* 2007;10:1924.
5. Sharma S, Tandon VR, Mahajan A. Menopause and cardiovascular disease. *JK Sci.* 2008;10:1.
6. Sharma S, Bakshi R, Tandon VR, Mahajan A. Postmenopausal obesity. *JK Sci.* 2008;10:105106.
7. Collins P, Rosano G, Casey C, Daly C, Gambacciani M, Hadji P. Management of cardiovascular risk in the perimenopausal women: A consensus statement of European cardiologists and gynecologists. *Climacteric.* 2007;10:508526.
8. Kasliwal RR, Kulshreshtha A, Agrawal S, Bansal M, Trehan N. Prevalence of cardiovascular risk factors in Indian patients undergoing coronary artery bypass surgery. *J. Asso. Physicians India.* 2006;54:371375.
9. Gupta R, Sarna M, Thanvi J, Rastogi P, Kaul V, Gupta VP. High prevalence of multiple coronary risk factors in Punjabi Bhatia community: Jaipur Heart Watch-3. *Indian Heart J.* 2004;56:646652.
10. Gupta R, Gupta VP, Sarna M, Bhatnagar S, Thanvi J, Sharma V. Prevalence of coronary heart disease and risk factors in an urban Indian population: Jaipur Heart Watch-2. *Indian Heart J.* 2002;54:5966.
11. Sharma S, Tandon VR, Mahajan A. Menopausal Symptoms in Urban Women. *JK Sci.* 2007;9:1317.