ROLE OF STRESS AND BLOOD PRESSURE AMONG MENOPAUSAL FEMALES

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Abstract: Menopause is an important transitional event that occurs in all females and marks the end of the reproductive phase of women. The study determines the stress level and blood pressure after attainingmenopause. Cross-sectional data was collected on a sample size of 111 postmenopausal Lotha females of Wozhuro range, Nagaland. The sample was collected on age group ranging from 45-60 years. The subjects were then categorized into 3 groups based on the time duration after attaining menopause i.e. 1-4 years, 5-8 years and 9-12 years. Structured proforma and standardized questionnaire were used in data collection. The study showed that subjects with 1-4 years and 9-12 years after attaining menopause had higher stress level than 5-8 years after attaining menopause. Those with 1-4 years and 5-8 years after attaining menopause also showed higher blood pressure as compared to 9-12 years after attaining menopause. Due to the hormonal changes relating to menopause which triggers menopausal symptoms like anxiety, hot flashes, night sweats etc. the first few years after attaining menopause may experience higher stress level and increased blood pressure.

Keywords: blood pressure, Lotha, menopause, stress

Introduction: Menopause is an important transitional event that occurs in all women mostly after their reproductive years and can also be associated with aging. Menopause is the permanent cessation of menstruation owing to loss of follicular activity of the ovaries. The word 'Menopause' was derived by a French physician in 1821, from the Greek word 'menos' for 'month' and 'pause' for means 'to stop'[1].Menopause is a stage when the mensuration cycle stops for longer than 12 months and there is a drop in the estrogen and progesterone, which are the two important hormones in the female body [2].The menopausal transition is a function of progressive decline in ovarian follicular population and reduced steroidogenetic capacity of ovarian stroma, as such it represents ovarian senescence[3].WHO scientific group in 1981 suggested that the reproductive life of adult women can be divided into various phases and defined premenopause as the term used to refer to the one or more years immediately before the menopause or to refer to the whole of the reproductive period prior to menopause [4].Postmenopause is defined as time since after attaining menopause, although it cannot be determined until after a period of 12 months of spontaneous amenorrhea has been observed [2].

According to American Psychological Association [5], when stress starts interfering with day-to-day activities for a prolonged period, it could be chronic and may cause disease either due to changes in the body or overeating, smoking and other habits people use to cope with stress. Stress has been shown to be either directly or indirectly responsible for early and untimely deaths through heart attack, stroke, high blood pressure and a multitude of other stress related illness [6]. Various studies have also shown that sudden emotional stresses like anger, could trigger heart attacks, arrhythmias and even sudden death [7]. In a study by Staessen et al., (1989) [8], both systolic and diastolic BP were found to be related to menopause independent of age, body mass index (BMI), pulse rate, and HRT, and postmenopausal women had greater odds of being hypertensive than premenopausal women.

Methods: The present study was conducted on Lotha tribe of Wozhuro range Wokha, Nagaland. Lothas are one of the major tribes of Nagaland and has their own unique culture and dress pattern. They follow Christianity andare exogamous i.e. marriage within the clan is forbidden and considered incest. The people of Wozhuro range are mostly agriculturist and practice shifting cultivation. Rice is considered as one of the staple food of the region.

Cross-sectional data was collected on a sample size of 111 postmenopausal females with age ranging from 45-60 years. For collecting data an exclusion criteria was set in the study where subjects who had undergone induced menopause and were unmarried were excluded. Only those subjects who had attained natural menopause were included in the study. The subjects were then categorized into 3 grouped according to the number of years after attaining menopause namely 1-4 years, 5-8 years and 9-12 years after attaining menopause.

Structured proforma was prepared along with standardized questionnaire for collecting social as well as demographic data. Blood pressure of the subjects was assessed using Sphygmomanometer and Stethoscope. Systolic and diastolic blood pressure was calculated according to JNC VII [9].

Stress level was calculated based on the questionnaire given by Canadian mental health association [6]. The questionnaire consist of 11 questions with three point rating scale on the basis of stress level such as, almost always -2 points; a few times a week -1 point; rarely -0 points. The total score was calculated and the stress level was determined by comparing with the category given by Canadian mental health association.

Statistical analysis was done using SPSS version 17. Cross-tabulation and ANOVA was used to determine whether there are any significant differences among group means.

Results

Table 1: Distribution of stress level and years after menopause

Years after attaining menopause	Stress level						F
	Above average		Average		Below average		
	N	%	N	%	N	%	
1-4 years after menopause	25	22.5	10	9.0	6	5.4	1.16
5-8 years after menopause	20	18.0	10	9.0	4	3.6	
9-12 years after menopause	24	21.6	9	8.1	1	0.9	

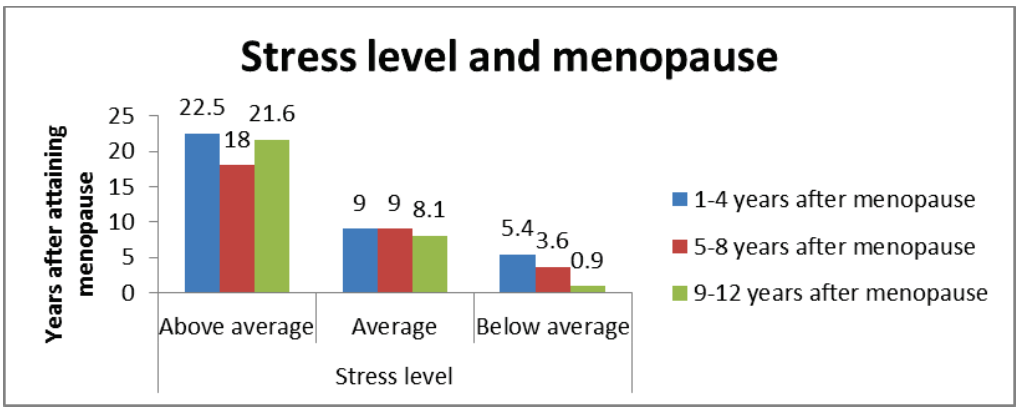

Figure 1: Distribution of stress level and years after attaining menopause

Table 1 and figure 1 describes the distribution of stress level and years after attaining menopause. It was observed that the stress level was higher among those females with 1-4 years (22.5%) and 9-12 years (21.6%) after attaining menopause than those with 5-8 years (18.0%) after attaining menopause. In the average category, 9% of the subjects were from 1-4 years and 5-8 years and 8.1% from 9-12 years. However, no significant correlation was found.

Table 2: Distribution of systolic blood pressure and years after menopause

Years after attaining menopause	Systolic blood pressure						F
	Normal		Pre hypertension		Hypertension		
	N	%	N	%	N	%	
1-4 years after menopause	15	13.5	18	16.2	8	7.2	0.56
5-8 years after menopause	13	11.7	16	14.4	5	4.5	
9-12 years after menopause	15	13.5	18	16.2	1	0.9	

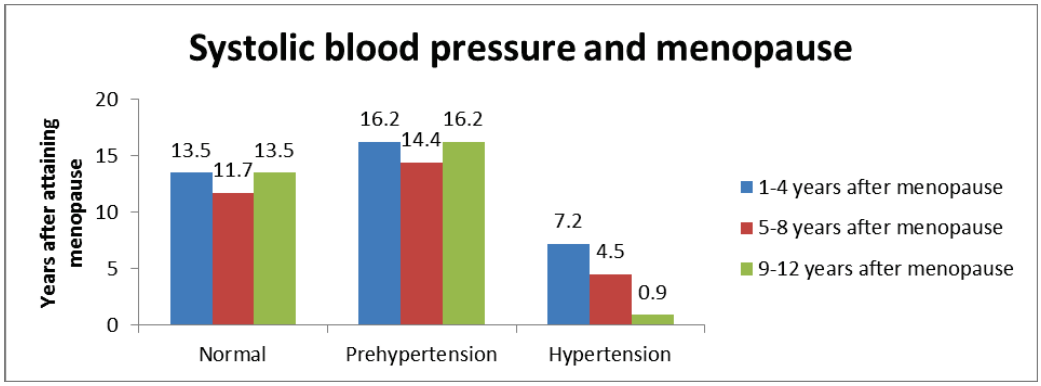

Figure 2: Distribution of Systolic blood pressure and years after attaining menopause

Table 2 and figure 2 describes the distribution of systolic blood pressure and years after attaining menopause. It was observed that, females with 1-4 years (7.2%) after attaining menopause showed higher systolic blood pressure, followed by 5-8 years (4.5%) and then 9-12 years (0.9%). In case of prehypertension, higher values were found among those with 1-4 years (16.2%) and 9-12 years (16.2%). No significant association was found among the groups.

Table 3: Distribution of diastolic blood pressure and years after attaining menopause

Years after attaining menopause	Diastolic blood pressure						F
	Normal		Pre hypertension		Hypertension		
	N	%	N	%	N	%	
1-4 years after menopause	16	14.4	12	10.8	13	11.7	1.24
5-8 years after menopause	19	17.1	2	1.8	13	11.7	
9-12 years after menopause	19	17.1	7	6.3	8	7.2	

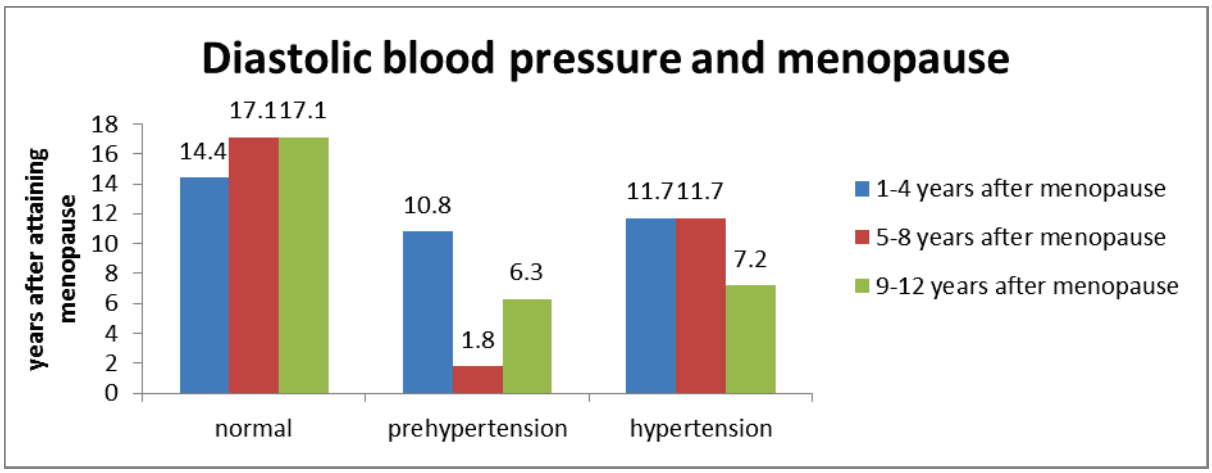

Figure 3: Distribution of diastolic blood pressure and years after attaining menopause

Table 3 and Figure 3 display the distribution of diastolic blood pressure and years after attaining menopause. It was found that higher diastolic blood pressure was observed among those with 1-4 years (11.7%) and 5-8 years (11.7%) after attaining menopause than those with 9-12 years (7.2%) after attaining menopause. In case of prehypertension those with 1-4 years (10.8) after menopause were found to be higher followed by 9-12 years (6.3%) and then 5-8 years (1.8%). Among those group with 5-8 years and 9-8 years after menopause, normal range of diastolic blood pressure was also observed. No significant association was observed.

Discussion: In the present study it was found that the stress level was higher among those with 1-4 years and 9-12 years after attaining menopause. In a study by Bickford (2005) [6] stress has been shown to be either directly or indirectly responsible for early and untimely deaths through heart attack, stroke, high blood pressure and a multitude of other stress related illness. In another study by Aaron et al., (2002)[10], it was observed that the prevalence of depression was higher among postmenopausal women (29%) than in premenopausal women (18%), however the study findings were statistically non-significant. In both systolic blood pressure and diastolic blood pressure higher values were found among 1-4 years after attaining menopause. These may be due to the hormonal changes relating to menopause which triggers menopausal symptoms like anxiety, hot flashes, night sweats etc. the first few years after attaining menopause may experience higher stress level and increased blood pressure.

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Conflict of interest: None

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