

Prevalence and risk factors of pre hypertension and hypertension among postmenopausal women of urban slums of Hyderabad

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Abstract

Introduction: Hypertension is the leading risk factor as well as component of cardiovascular diseases which is on rise and emerging as a major public health problem. Due to the paucity of studies among postmenopausal women on pre hypertension and hypertension this study was taken up in urban slums of Hyderabad.

Aim and Objectives: 1. To determine the prevalence of pre hypertension and hypertension among post menopausal women and; 2. To assess their relationship with risk factors.

Materials and Methods: A community based cross sectional study was undertaken in urban slums of Hyderabad among four hundred and thirty post menopausal women. Detailed history on dietary, lifestyle, personal habits, reproductive and socio demographic variables was taken to relate with pre hypertension and hypertension which was graded using Joint national committee (JNC 7).

Results: The prevalence of pre hypertension was 29% and hypertension was 35% among post menopausal women. Significant association was found with increasing age, duration of menopause, family history of hypertension, extra salt intake and sedentary lifestyle.

Conclusions: Hypertension among post menopausal women poses a major threat due to complications associated with it and these are much amenable by primordial and primary preventive strategies.

Keywords: Pre hypertension, Hypertension, Modifiable risk factors, JNC7, Primordial prevention, Post menopause.

Introduction

Menopause is a physiological event but with a potential for precipitating chronic disorders in vulnerable women- "Marker for diseases". Hypertension is one among the cardiovascular disease and also the third most risk factor in South Asia.¹ Indians are also experiencing increased prevalence of cardiovascular diseases due to the epidemiological transition where by there are changes in lifestyle, eating habits, tobacco and alcohol usage and inadequate physical activity. Women after attaining menopause have higher chances of hypertension due to the increased plasma renin angiotensin activity.² Hypertension is becoming a public health challenge especially among women as they have increased life expectancy when compared to men. As a consequence of this women are spending more than one third of their life during this post menopause period.³

According to Barker's theory- chronic diseases have their origin in utero and the clinical presentation would depend on genetic, environmental, social and cultural factors.⁴ Among these identification of modifiable risk factors are amenable for primordial and primary prevention. Thereby it is very essential to screen post menopausal women for determining Pre hypertension and hypertension to prevent complications and also adopt strategies to intervene at early stage by lifestyle modifications. This study has made an attempt with an aim and objectives- to determine the prevalence of pre-hypertension and hypertension among post menopausal women and also to assess their relationship with risk factors.

Materials and Methods

This study was community based cross sectional study conducted at 5 urban slums of south west Hyderabad having a total population of 13,023 with estimated women >40 years as 986. By adopting simple random sampling and using lottery method post menopausal women fulfilling the criteria were chosen.

Based on various studies in India among urbanized areas an average of 50% of prevalence was taken to calculate the sample size using the formulae $4pq/l^2$ ($4 \times 50 \times 50 / 25 = 400$) and non response rate 10% about four hundred and thirty participants were studied.⁵⁻⁷ 534 women were contacted and those women who fulfilled the criteria of natural menopause above the age group of 40 years, not sick and who gave consent were included in the study. Premature and surgical menopause women were excluded from the study. On an average 30-35 were selected from each slum for feasibility. A pretested questionnaire schedule was used to elicit information on socio demographic variables; reproductive parameters; history of oral contraceptive usage, family history of hypertension; dietary history consisting of information on type of diet, Intake of fruits/ vegetables; extra salt intake in the form of papads, processed junk food, chutneys, pickles; extra fat intake using food frequency questionnaire. Any intake greater than three times a week was considered as regular intake. Personal history included consumption of alcohol and tobacco users. Lifestyle was classified as sedentary, moderate and heavy. Height was measured without slippers to the nearest 0.1 cm and weight was measured using digital weighing

machine to nearest 0.1kg. Body mass index was calculated as per grading of obesity for Asians as <18.5 –underweight, 18.5-23 as normal, 23.1-27.5 as overweight and >27.5 as obese.⁸

Blood pressure for all the participants was measured by the auscultatory method in sitting position using a mercury sphygmomanometer in left arm twice, 5 minutes apart and an average of two readings was taken. The team had been trained in the standardized technique of blood pressure measurement by skilled medical practitioner. In case where the two readings differed by over 10 mm of Hg, a third reading was obtained and the three measurements were averaged. Normal blood pressure was taken as less than 120 mmHg–systolic and less than 80 mmHg–diastolic. As per US seventh joint national committee on detection, evaluation and treatment of hypertension (JNC VII) criteria - participants with the blood pressure values of 120 to 139 mmHg (systolic) or 80 to 89 mmHg (diastolic) were classified under pre-hypertension category. Stage-I hypertension was taken as 140 to 159 mmHg–systolic or 90 to 99 mmHg–diastolic, whereas Stage- II hypertension was taken as blood pressure of more than 160 mmHg–systolic or more than 100 mmHg–diastolic.⁹

Institutional ethical committee approval was

obtained and written consent was taken from the participants. Data was entered and analysed using Microsoft excel 2010; Frequency, mean and standard deviations were calculated. Tests of significance was calculated using Chi- square wherever required to depict association with the risk factors.

Results

Socio Demographic Characteristics of Participants:

Majority of the postmenopausal women 193 (44.8%) belonged to the age group of 51-60 years. Most of them were illiterates 286 (67%). As per occupation majority were housewives 319 (74.3%). Based on socioeconomic status as per modified BG Prasad's classification majority belonged to lower middle class 133(30.9%).¹⁰

Prevalence of Hypertension among Postmenopausal Women:

In urban postmenopausal women the prevalence of Pre HTN was 123(29%), HTN-I was 70(16%) and HTN-II was 81(19%) [including already known hypertensive]. (Fig. 1)

Mean systolic blood pressure was 134.27±21.16mm of hg and mean diastolic blood pressure was 88.32±14.72 mm of hg.

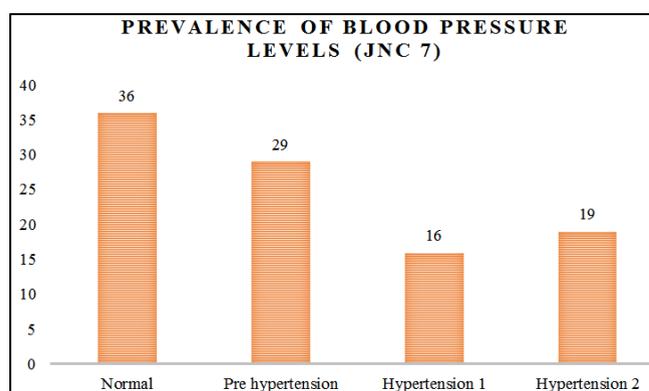


Fig. 1: Prevalence of blood pressure levels (JNC 7)

Various risk factors were determined classified as Non modifiable and Modifiable. Average number of live children were three. Duration of menopause was less than 5 years among 108(25.1%), 5-10 years of duration among 113(26.3%) and greater than 10 years

among 209(48.6%). Mean duration since menopause was 12±7.45 years. Statistically significant association was found with increasing age, duration of menopause and family history of hypertension among non modifiable risk factors. Table 1. No significant association was found with parity in our participants.

Table 1: Non modifiable risk factors associated with pre hypertension and hypertension

Non modifiable Risk factor	Normal N=156	Prehypertension N=123	Hypertension N=151	Total N=430	Chi square Df	P value
Age	41(43%)	29(30%)	26(27%)	96(100%)	31.426 df=2	0.0001
41-50yrs	79(41%)	64(33%)	50(26%)	193(100%)		
51-60yrs	36(25%)	30(21%)	75(54%)	141(100%)		
Duration of menopause	44(41%)	38(35%)	26(24%)	108(100%)	29.394 df=2	0.0002
<5yrs	51(45%)	37(33%)	25(22%)	113(100%)		

5-10yrs	61(29%)	48(23%)	100(48%)	209(100%)		
>10yrs						
Family History of hypertension	20(12%)	34(20%)	115(68%)	169(100%)	13.88	0.00032
Yes	136(52%)	89(34%)	36(14%)	261(100%)	df=1	
No						

Current consumption of alcohol was found among 95(22.1%), current tobacco users in the form of pan parag, gutka and zarda was observed among 109(25.3%). Sedentary type of lifestyle was observed among 266(61.9%), moderate among 160(37.2%) and heavy workers among 4(0.9%). Using grading of obesity for Asians overweight were 130(30.2%) and obese were 150(34.9%). Extra salt intake was found among 156(36%). Regular intake of fruits was found

among 61(14%); Regular intake of vegetables was found among 332(77%); extra fat intake was noted among 20(4.7%); Use of oral contraceptive was found none among them. Hypertension was found more among overweight and obese but not statistically significant. Statistically significant association was found with lifestyle and extra salt intake among modifiable risk factors. Table 2

Table 2: Modifiable risk factors associated with Pre Hypertension and Hypertension

Modifiable risk factor	Normal N=156	Pre hypertension N=123	Hypertension N=151	Total N=430	Chi square df	P value
Lifestyle						
Sedentary	88(33%)	66(25%)	112(42%)	266(100%)	21.437	0.0002
Moderate	64(40%)	57(36%)	39(24%)	160(100%)	df-4	
Heavy	4(100%)	0(0%)	0(0%)	4(100%)		
Extra salt intake						
Yes	6(5%)	30(26%)	80(69%)	116(100%)	94	0.0001
No	150(48%)	93(30%)	71(22%)	314(100%)	df-1	
Body mass index						
Underweight						
Normal	12(44%)	10(37%)	5(19%)	27(100%)	6.151	0.188
Overweight + Obese	51(41%)	30(24%)	42(35%)	123(100%)	df-2	
	93(33%)	83(29%)	104(38%)	280(100%)		

Discussion

Our study found prevalence of pre hypertension among 29% and hypertension among 35% using JNC 7. Fareed et al among Ghanian postmenopausal women found very high prevalence of hypertension 83%.¹¹ Whereas Indian studies depicted in New Delhi urban slum by Nidhi Gupta et al was 39.6% as hypertension and 37% pre hypertension. This variation could be explained by ethnicity and different methods adopted.⁵

In our study significant association was found with increasing age. Song et al among Chinese women found high blood pressure with increasing age after adjusting for other confounding variables.¹² Elisa et al in their study among Italian women found that with increase in parity the risk of hypertension increases but in our study this could not be elicited.¹³ This could be due to cultural factors and biological variables in different settings.

Our study found alcohol usage among 22%, tobacco usage 25.3%, extra salt intake 36% and nil usage of oral contraceptive usage. Statistical significant association was found with extra salt intake and sedentary lifestyle.

Bagdey et al found in their study among central Indian post menopausal women to have higher intake of salt 96%, family history of hypertension 48%, and low physical activity 47%. They also found significant

association with BMI.⁶ But similar to our study other factors such as alcohol use and oral contraceptive use to have negligible effect. Ruth et al among Hispanic postmenopausal women found significant association with body mass index and family history.¹⁴ Renu Tyagi et al also found obese and sedentary lifestyle to be more hypertensives among post menopausal women.⁷

Identification of pre hypertension and their modifiable risk factors among post menopausal women signals for early intervention in our study. One of the limitation of our study is that we could not assess stress among postmenopausal women.

Conclusions

Our study depicted prevalence of pre hypertension to be 29% and hypertension 35% among urban postmenopausal women which needs urgent requirement to be addressed. There was significant modifiable risk factors such as extra salt intake, body mass index and lifestyle. By adopting preventive strategies to curtail salt intake especially avoiding processed food, papads, chutneys and junk food, they can reduce salt intake. To maintain normal body weight and change their sedentary lifestyle to more active would help to reduce the risks of changing from pre

hypertensive to hypertensive and also reduce their complications.

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