

**CLINICAL PROFILE OF HYPERTENSION IN ELDERLY- IN A RURAL TEACHING
INSTITUTE OF SUB-HIMALAYAN REGION**Abhimanyu Patial¹, Kailash Nath Sharma*², Dhiraj Kapoor³, Varan Deep Dogra⁴ and Tarun Sharma⁵¹3rd Year Junior Resident DRPGMCH Tanda Kangra.²Professor Medicine DRPGMCH Tanda.³Professor and Head Medicine DRPGMCH Tanda Kangra.⁴Professor Medicine DRPGMCH Tanda Kangra.⁵Assistant Professor Medicine RPGMC Tanda at Kangra HP.***Corresponding Author: Kailash Nath Sharma**

Professor Medicine DRPGMCH Tanda.

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ABSTRACT

Introduction: Hypertension causes over 7 million premature deaths per year and contributes to 4.5% of the total disease burden worldwide.^[4] Notably, older adults account for the bulk of hypertension-related morbidity and mortality – due largely to dramatically greater prevalence among the elderly. Despite the well-documented pervasiveness of late-life hypertension among older adults, many challenges remain. In the phase of epidemiological transition, cardiovascular disease especially hypertension is emerging as a major health problem in elderly population. The present study was aimed to study profile of elderly hypertensive patients attending the outpatient department (OPD) of Dr RPGMC Kangra at Tanda. **Results:** 59% patients aged between 61-70 years followed by 34% patients in 71-80 years, and 6% patients in 81-90 years. Male to female ratio in our study was 1.08:1. Nineteen smokers had stage 2 hypertension. These 19 patients had fasting blood glucose >126 mg/dl and HbA1c >6.5%. 25% of the patients hypercholesterolemia, 22% patients had high triglycerides, and 25% patients had high LDL. USG (KUB) showed bilateral renal disease in 11% patients. Stroke was seen in 12% of the patients. Echo findings showed RWMA in 10% patients and LVH in 18% patients. 21% patients had hypertensive showed retinopathy. **Conclusion:** Hypertension is common in elderly population with no gender predilection. Smoking, diabetes, dyslipidaemia, overweight and alcohol consumption were found to be risk factors for stage 2 hypertension in elderly population. Elderly hypertensives were found to be prone to risk of complications such as stroke, LVH, retinopathy and nephropathy.

KEYWORDS: Elderly, hypertension, complications.**INTRODUCTION**

Hypertension accounts for approximately 7% of all visits, second only to colds and sinusitis.^[1] Among the potential targets for improving health among older adults, hypertension represents one of the most prevalent and potentially modifiable. Hypertension causes over 7 million premature deaths per year and contributes to 4.5% of the total disease burden worldwide.^[2] Notably, older adults account for the bulk of hypertension-related morbidity and mortality – due largely to dramatically greater prevalence among the elderly.^[3] In fact, recent data from the National Health and Nutrition Examination Survey indicate that 70% of older adults have hypertension, compared to only 32% for adults aged 40-59 years.^[3] Arterial stiffness increases with age, and this loss of elasticity is related to the deposit of calcium and collagen in the arterial wall and the degeneration of elastic fibres. Aorta and major arteries are predominantly affected. Consequently, this reduced arterial compliance leads to an elevation of the systolic BP (SBP) and a

further decline of the diastolic BP (DBP). Pulse pressure is increased and eventually results in isolated systolic hypertension, which is the most common form of hypertension in the elderly.^[4] The rate of hypertension control among the elderly is much lower than among patients in their middle age.^[5] At the same time, comorbidities, including stroke and coronary artery disease, are more common in the elderly patients. As a result, the elderly potentially can achieve a greater benefit than their younger counterparts through antihypertensive treatment.^[6] Therefore better strategies for controlling BP, including optimal BP targets, are crucial for this patients population. Scanty information is available from India regarding the prevalence of hypertension and its complications. The present study was aimed to study profile of elderly hypertensive patients attending the outpatient department (OPD) of Dr RPGMC Kangra at Tanda.

MATERIAL AND METHODS

AIMS AND OBJECTIVES

To Study clinical profile of hypertension in newly diagnosed elderly patients.

It was a descriptive hospital based study. Study was conducted in Dr. Rajendra Prasad Government Medical College, hospital Kangra at Tanda. The study was conducted for a period of 12 months. All patients attending the OPD of the department of medicine within this duration fulfilling the inclusion criteria were included in the study.

Inclusion Criteria

All patients above 60 year of age newly diagnosed with hypertension.

Exclusion Criteria

1. Patient aged below 60 years of age
2. Failure to give consent
3. Patient who were non hypertensive, and
4. Patients included in the study but failed to complete the work-up

It was one year observational study with 100 hypertensive patients. Hypertension was defined based on the average of two or more properly measured seated BP readings as in JNC 7 report. The auscultatory method of BP measurement with a properly calibrated LED apparatus was used. Patients were seated quietly for at least 5 minutes in a chair (rather than on an exam table), with feet on the floor, and arm supported at heart level. Measurement of BP in the standing position was indicated periodically, especially in those at risk for postural hypotension. No liquor intake or smoking before recording blood pressure. An appropriate-sized cuff (cuff bladder encircling at least 80 percent of the arm) was used to ensure accuracy. At least two measurements were made. SBP was the point at which the first of two or more sounds is heard (phase 1), and DBP was the point before the disappearance of sounds (phase 4). History and Clinical Examination of all patients was recorded for demographic profile, age, occupation, place of residence, type of diet taken (a) veg or non-veg (b) fruits and vegetables taken routinely or not), relevant past history, personal and family history, and alcohol and smoking status were elicited. Laboratory Investigations were done in all patients for routine CBC, biochemistry, ECG and ECHO to rule out associated CAD and LVH, Fundus examination to rule out retinopathy, USG (ABDOMEN +KUB) in all patients to rule out CKD. Written informed consent was obtained from all the patients included in the Study.

Statistical Analysis

Data were presented as frequency and percentages.

RESULTS

A total of 100 elderly hypertensive patients were enrolled in to the study after they followed inclusion

criteria. There were 28 patients in stage-1 hypertension and 72 patients in stage 2 hypertension. 59% patients (n=59) aged between 61-70 years followed by 34% patients (n=34) in 71-80 years, and 6% patients (n=6) in 81-90 years. There was only one patient who aged more than 90 years. 52% of the patients (n=52) in the present study were males. Male to female ratio in our study was 1.08:1. In our study, 61% patients (n=61) were vegetarian and 39% patients (n=39) were non-vegetarian. Forty-seven patients consuming vegetarian diet and 25 patients consuming non-vegetarian diet had stage-2 hypertension. 33% patients (n=33) were smokers and 67% patients (n=67) were non-smokers. Nineteen smokers had stage 2 hypertension. Out of 100 patients, 23% patients (n=23) were consuming alcohol. Eleven patients with alcohol abuse had stage 2 hypertension. 34% patients (n=34) were overweight. Twenty-two overweight patients had stage-2 hypertension. 19 patients who were diabetic found to be hypertensive. These 19 patients had fasting blood glucose >126 mg/dl and HbA1c >6.5%. Out of 19, 11 were found to have stage 2 hypertension. 25% of the patients (n=25) hypercholesterolemia (cholesterol >230), 22% patients (n=22) had high triglycerides, and 25% patients (n=25) had high LDL. Mostly dyslipidaemia was present in diabetic patients. 12% patients (n=12) presented with upper motor neuron (UMN) hemiparesis. 7% and 5% patients presented with left side and right side UMN hemiparesis respectively. NCCT head examination was performed for 12% patients (n=12). Stroke (cerebrovascular accident) was observed in 12% patients (n=12). 5% patients presented with ischemic stroke and 7% patients with intraparenchymal bleed. All the patients with stroke had stage 2 hypertension. Creatinine level were raised (>1.2 in females and >1.4 in males) in 11% patients (n=15). USG (KUB) showed bilateral renal disease in 11% patients (n=11). ECG examination showed ST elevation in 6% patients and NSTEMI in 4% patients. 13% patients showed LVH by Voltage criteria. For 77% patients, ECG examination was normal. Echo findings showed RWMA in 10% patients and LVH in 18% patients. Hence, on Echo examination, 5 patients who were showing normal ECG had LVH. Sixty patients showed normal fundus examination. 21% patients had hypertensive retinopathy and 9% patient had bilateral NPDR with hypertensive retinopathy. 5% patients had grade 1 hypertensive retinopathy, 12% patients had grade 2 hypertensive retinopathy, and 4% patients had grade 3 hypertensive retinopathy.

Patient Profiles of 100 Patients and Their Percentages As Per Stage of Hypertension.

Profile (N=10)	Stage1	Stage11	Percentage
Male	21	31	52
Female	7	41	48
Non-veg	14	25	39
veg	14	47	61
Smoker	14	19	33
Non-smoker	14	53	67
Alcohol consumer	12	11	23
Non alcohol consumer	16	61	77
Normal BMI	16	50	66
Overweight	12	22	34
HbA1C >6.5%	8	11	19
Cholesterol > 230	9	16	25

DISCUSSION

Hypertension is the leading modifiable cause of mortality worldwide.^[7] As with many conditions, hypertension increases with age and is a common condition in older persons. The Framingham Heart Study reported that the prevalence of hypertension increased from 27.3% in patients aged younger than 60 years to 74.0% in those aged older than 80 years, demonstrating the age-related nature of hypertension.^[8] While older populations are often excluded from clinical trials for many conditions,^[9] a number of large, well-designed trials exploring hypertension in older persons have been conducted. 51A Cochrane review published in 2009 reported 15 studies (n=24,055 patients) exploring the management of hypertension in those older than 60 years.^[10] The present study was aimed to evaluate the profile of elderly hypertensive patients attending the outpatient department (OPD) of Dr RPGMC Kangra at Tanda. In the present study, 72% of the patients were in stage-2 hypertension. Benur J observed that 37% of the elderly hypertensive were in stage-2.^[11] In our study, 59% patients in age between 61 and 70 years and 34% in 71-80 years of age-group were hypertensive. Chinnakali et al estimated the prevalence of hypertension and understand the health seeking behaviour among the elderly in rural Pondicherry, South India. Mean age of study participants was 66 years (SD \pm 6.9).¹² A study in rural part of Karnataka reported prevalence of hypertension among 60-69 years population to be about 30.5% and 32% in above 70 years population.^[13] Moreover, a study done in Kolkata, eastern India among the elderly in urban areas reported prevalence of 53.5%.^[14] The difference in prevalence levels may be due to different geographical factors and may be due to differences in dietary pattern. Prevalence of hypertension was higher in males in our study. Chiianakali et al reported that about three-fourths (76%) of study subjects were females. Men have higher blood pressure than women through much of life regardless of race and ethnicity. Hypertension prevalence is less in women than in men until 45 years of age, is similar in both sexes from 45 to 64 and is much higher in women than men over 65 years of age. The severity of hypertension increases markedly with advancing age in

women as well. After the age of 60 years, the majority of women (age 60-79 years: 48.8%; age \geq 80 years: 63%) has stage 2 hypertension (BP \geq 160/100 mmHg) or receives antihypertensive therapy. 19% of the elderly diabetics patients also found to be hypertensive. Chiianakali et al reported that 13% of the elderly hypertensive patients were diabetic. Pratim et al reported that diabetes was significantly associated with hypertension. In our study, 25% patients had cholesterolemia, 22% patients had hypertriglyceridemia, and 25% had high LDL ($>$ 120). Dyslipidemia is an important factor for atherogenesis.^[15] Accelerated atherosclerosis is an invariable companion of hypertension, smoking, alcohol consumption and diabetes also affect the serum lipid profile. Benur J reported dyslipidemia in 23.5% patients. 20% patients had hypercholesterolemia whereas 17% patients had hypertriglyceridemia.^[11] A study carried out by Kulkarni et al found the incidence of hyperlipidemia to be 55.9%.^[16] Creatinine levels were higher in 11% patients in our study. USG (KUB) also showed bilateral renal disease in 11% patients. Ellis and Cairns found that overall prevalence of renal disease in this population was 8.4%: 6.1% in the hypertensives, 12.6% in the diabetics and 16.9% in those with both. Significant proteinuria (\geq 2+) was present in 3.9% of the total population: 2.2% of hypertensives, 8.3% of diabetics and 3.9% of those with both. At screening, 44.5% of individuals had inadequately controlled blood pressure.^[17] Kumar et al observed renal failure in 5.1% of the elderly hypertensive patients.^[18] In the present study, 18% patients had LVH, 10% RWMA, 15% chronic kidney disease, 21% patients had hypertensive retinopathy, 9% patients had both bilateral NPDR and hypertensive retinopathy and 12% patients were found to have stroke. In a study by Benur J, ischemic heart disease was present in 43.5% of the patients, LVH in 32.3% patients, myocardial infarction in 9% elderly hypertensive patients. Kulkarni et al found the incidence of LVH to be 46.4%.^[16] Vaidya and Majumdar suggested that cerebrovascular stroke is more in elderly with hypertension.^[19] Kulkarni et al observed Cerebrovascular complications in 15.4% elderly patients having hypertension with 52 LVH.70 Kumar et al observed that cerebrovascular disease was present in 14.2% elderly hypertensive while followed by ischemic heart disease (10.8%), heart failure (8%), and hypertensive retinopathy (7.42%).^[19] in our study 21% patients had hypertensive retinopathy and 9% patient had bilateral NPDR with hypertensive retinopathy. In study by Benur J, hypertensive retinopathy was found in 37% patients.^[11] Kulkarni et al found hypertensive retinopathy among 69/179 (38.5%) among which 40 had stage II hypertension.^[16]

CONCLUSION

Hypertension is common in elderly population with no gender predilection. Smoking, diabetes, dyslipidaemia, overweight and alcohol consumption were found to be risk factors for stage 2 hypertension in elderly population. Elderly hypertensives were found to be prone

to risk of complications such as stroke, LVH, retinopathy and nephropathy. Clinical examination and assessment of target organ damage, presence of co-morbid illness in hypertensive individuals helps us in making the strategy for management. The observations warn us to screen for hypertension in elderly population at the early stage to prevent any complications.

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