

**A STUDY OF AETIOLOGICAL FACTORS OF HYPERTENSION IN
HOSPITALIZED PATIENTS FROM RURAL
AREAS OF ABBOTTABAD**

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Abstract: Two hundred and fifty proven hypertensive patients from rural areas of Abbottabad were selected for this study. The study was conducted at Civil Teaching Hospital, Abbottabad. This study was conducted with the purpose to establish the relationship of hypertension with age, sex, body weight, tobacco addiction, literacy rate, serum cholesterol and kidney functions. Only 89 cases (35.6%) were traced to have some apparent cause of hypertension. The aetiology of hypertension in rest of the patients (64.4%) was unknown.

Introduction

Hypertension and its complications are important cause of death in man despite extensive medical research in this field. Only in a small percentage of hypertensive people aetiology of disease can be established, otherwise in a large percentage, hypertension is idiopathic. The aim of the present study was to find the relationship of hypertension with its various aetiological factors like age, sex, body weight, kidney functions, use of tobacco and serum cholesterol level in this particular region which is situated at 4,000 feet or more above the sea level. People are poor, their diet is also simple though it contains a lot of fats in the form of ghee. Literacy rate in this area is very low. Both males and females work in the fields for procurement of livelihood. The prevailing conditions are much different in this region, as compared to rest of the country. The primary illnesses for which patients were admitted in the hospital included stroke, toxæmia, heart disease, headache and dizziness, diabetes, kidney diseases, eye diseases. Some patients presented primarily with fractures, bleeding per vagina, and phaeochromocytoma. Though this study has been carried out on only those people who got access to hospital in the city but it can roughly give the idea about the aetiology of hypertension in the community living in hilly rural areas.

Material and Methods

Two hundred and fifty proven hypertensive patients hospitalized in Civil Teaching Hospital from rural areas of Abbottabad were selected for this study. The patients of both sexes were divided into four groups according to their ages, ranging from below 20 years to 80 years with a difference of 20 years between each age group. The agreed criteria of hypertension i.e., systolic and diastolic blood pressures above 160 and 90mm of Hg respectively for three consecutive days in supine and sitting positions was adopted for labelling a person hypertensive.

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All these patients were subjected to routine investigations like routine urine examination, body weight, serum cholesterol and I.V.U. In some of the patients fasting urine samples were examined qualitatively for sugar, albumin, pus cells, R.B.Cs., epithelial cells, casts and crystals. Serum cholesterol was determined by the method of Zak as modified by Bowman and Wolf (1962).¹ The results of serum cholesterol were compared with the values according to age and sex, as mentioned by Schilling et al (1969).² The body weight of the patients was taken with indoor clothes and was compared with the standard weights according to age, sex and height.

Results

The results of urine R.E. revealed that out of 250 cases only 42 patients were found to have urinary abnormality. Sugar was positive in 13 cases and albumin was present in 13 cases. Pus cells were found in the urine of 22 subjects but only 4 cases were detected to have numerous pus cells in their urine. A few R.B.Cs. were present in 20 cases.

Epithelial cells were excreted in the urine by 40 cases out of which only 2 cases were found to have many epithelial cells. Granular casts were passed by 18 patients and hyaline casts by two patients only. Two samples of urine contained both granular and hyaline casts. Calcium Oxalate crystals were passed by 20 triple phosphate by 9 and urates by 20 patients.

I.V.U. was found abnormal in only 2 patients. No abnormality was detected in the urine of 208 patients. Body weight in the age group of below 20 years ranged from 38 to 54 kg in females and 42 to 62 kg in males. In the age group between 21 and 40 years, the body weight varied from 40 to 65 kg in females and 45 to 70 kg in males. Those with age group of 41 to years, the body weight was found between 42 and 62 kg in females and 50 to 75 kg in males. In the patients of age group 61 to 80 years, the body weight ranged from 36 to 60 kg in females and 45 to 72 kg in males. On the whole, 48 cases were labelled to be overweight according to their age, sex, and height.

Serum cholesterol was found to vary from 125 to 180 mg/dl in females and from 135 to 190 mg/dl in males in the age group of below 20 years. In the age group of 21 to 40 years, serum cholesterol ranged from 145 to 220 mg/dl in females and 160 to 240 mg/dl in males. Serum cholesterol of the age group between 41 and 60 years was detected to be 165 to 300 mg/dl in female subjects and 170 to 310 mg/dl in male patients. Those with the age of to 80 years were found to have serum cholesterol between 190 to 360 mg/dl in females and 180 to 340 mg/dl in males. On the whole, 28 patients were found hypercholesteremic out of 250 patients.

Literacy rate was very low among the hypertensive patients. Only 54 subjects (about 22%) were literate and 196 patients (78%) were illiterate.

Tobacco was used in the form of cigarette, 'chillum' or snuff by 89 patients. Smokers were 52 while 37 patients used snuff.

The above discussed parameters along with the systolic and diastolic blood pressure of the patients have been summarized in Table-I. The distribution of various aetiological factors among the hypertensive patients have been recorded in Table-II. The results of urine R.E. have been given in Table-III.

Table -1
RELATIONSHIP OF VARIOUS AETIOLOGICAL FACTORS WITH HYPERTENSION

Age group (Years)	No. of Cases	Tobacco Users		Range of Weight (kg)		Range of cholesterol (mg/dl)		Blood pressure	
		Smokers	Snuff users	Males	Females	Males	Females	Systolic (mean)	Diastolic (mean)
20	38	10	06	42-62	38-54	135-190	125-180	162	91
21-40	96	21	11	45-70	40-65	160-240	145-220	170	101
41-60	79	16	13	50-75	42-62	170-310	165-300	176	105
61-80	37	05	07	45-72	36-60	180-340	190-360	182	112

Table – II
**DISTRIBUTION OF VARIOUS AETIOLOGICAL FACTORS AMONG 250
HYPERTENSIVE PATIENTS**

	Tobacco addiction	Overweight	Hypercholesterolemia	Urinary Abnormality	Abnormal I.V.U.	No of Apparent Cause
No. of Patients	89	48	28	42	2	161

Table – III
RESULTS OF URINE R.E. AND I.V.U. IN HYPERTENSION

No. of Patients	Sugar	Albumin	Pus Cells	R.B.C.	Epithelial Cells	Casts	Crystals	I.V.U.
208	-	-	--	--	-	--	--	N.D.
18	-	-	(5-10) HPF	(5-10) HPF	(5-10) HPF	C.C.	Co. Ora:	N.A.D.
11	+	-	(5-10) HPF	--	(5-10) HPF	--	--	N.D.
09	-	-	--	--	(5-10) HPF	--	T. Phos:	N.D.
02	++	-	(10-30) HPF	(5-10)HPF	-	E.C.	Urates	—
02	-	+++	(10-30) HPF	--	(10-30) HPF	BC + GC	Ca. Ora:	Impaired