Original Research Article

Prevalence of hypertension in rural population of Udaipur

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Abstract

With the advent of the twenty first century, it is becoming increasingly clear that hypertension is a chronic condition of concern due to its role in the causation of coronary heart disease, stroke and other vascular complications. Cardiovascular diseases have become a ubiquitous cause of morbidity and a leading contributor to mortality in most countries which accounts for 20 – 50% of all deaths. The rates for HTN in percentage are projected to go up to 22.9 and 23.6 for Indian men and women, respectively by 2025. Hypertension is attributable to 10.8% of all deaths in India.It is estimated that 16% of Ischaemic Heart Disease, 21% of Peripheral Vascular Disease, 24% of Acute Myocardial Infarctions and 29% of strokes are attributed to hypertension.**Material and method:** This is a population based cross- sectional study carried out in rural practice area of Geetanjali Medical College and Hospital, Udaipur, Rajasthan. Rural Health Training Center located 22 km away from GMCH, Udaipur at LoyraFrom 1st January to 31st December of 2017. The information was collected on a pre-tested, pre-structured, well designed scheduled questionnaire prepared for further statistical analysis to fulfill the objective of study among 1200 individuals. **Results :**Of the total 1,200 subjects examined, 705 (58.75%) were males and 495 (41.25%) were females. 572 study subjects out of 1,200 were hypertensives indicating that the prevalence of hypertension in the area studied was 47.67%.**Conclusion**: Hypertension is the commonest cardiovascular disease, posing a major public health challenge to societies in socio economic and epidemiological transition. India, undergoing this transition is burdened with problem of increasing prevalence of hypertension especially in rural areas. There is a need for community diagnosis of such health problems for which proper preventive measures can be undertaken thus minimizing health burden to the society.

Keywords: Hypertension Rural,Cardiovascular

Introduction

According to guidelines from The American Heart Association (AHA). 2017, hypertension is defined as 'Blood Pressure as 130 mm Hg or higher for the systolic blood pressure measurement, or 80 mm Hg or higher for the diastolic blood pressure measurement."With the advent of the twenty first century, it is becoming increasingly clear that hypertension is a chronic condition of concern due to its role in the causation of coronary heart disease, stroke and other vascular complications.

Cardiovascular diseases (CVD) have become a ubiquitous cause of morbidity and a leading contributor to mortality in most countries which accounts for 20 – 50% of all deaths[1]. High blood pressure (BP) is ranked as the third most important risk factor for attributable burden of disease in south Asia (2010)[2]. Hypertension (HTN) exerts a

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substantial public health burden on cardiovascular health status and healthcare systems in India[3,4]. According to 2011 census there are 1.2 billion population of India of whom 833 million reside in rural areas and 377 million stay in urban areas, the absolute number of hypertensives in India is 12-17% and 30-40% in rural and urban areas respectively.The rates for HTN in percentage are projected to go up to 22.9 and 23.6 for Indian men and women, respectively by 2025[5].

The Indian scenario-India, one of the developing countries is a vast country with a heterogeneous and young population. The increasing epidemic of hypertension in India was documented by studies done at various place across the country. The life expectancy in India has risen from 41.2 years in 1951-1961 to around 68 in 1991-2018[6].With these demographic shifts the increasing longevity has provided long periods for development and exposure to hypertension. The overall rates of hypertension awareness, treatment and control of blood pressure were 25, 25 and 11%, respectively, for rural Indians; and 42, 38 and 20%, respectively, for urban Indians. Although these findings are consistent with those reported from other low and middle-income nations [7]. Hypertension is thought to be less common in rural areas because of limited data and different rates of prevalence of hypertension. Although different rates may be due to different cut off marks in determining the level of hypertension and also differing age groups constituting the study population. Due to lack of awareness and lack of access to health care facilities at rural areas, the screening and treatment of hypertension is not done regularly. Hypertension is attributable to 10.8% of all deaths in India. The adult Hypertension prevalence has shown a drastic increase in the past three decades in urban as well as rural areas. It is estimated that 16% of Ischaemic Heart Disease, 21% of Peripheral Vascular Disease, 24% of Acute Myocardial Infarctions and 29% of strokes are attributed to hypertension[8].Looking at the existing burden of disease, the Indian Government has launched the National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke for prevention and control of disease at community level[9].

Aims and objectives

To study the prevalence of hypertension in rural adult population.

To study the associated risk factors of hypertension in adult population in RHTC area of GMCH Udaipur.

Material and method

Study Area: The present study was carried out in rural practice area of Department Of Community Medicine, Geetanjali Medical College and Hospital, Udaipur, Rajasthan. Rural Health Training Center located 22 km away from Geetanjali Medical College and Hospital, Udaipur at Loyra.

Study period: 1st January 2017 to 31st December 2017.

Inclusion Criteria:1.Subjects those who met the criteria of hypertension.(BP>140/90 mm of Hg in<80 yrs,150/100 mm of Hg in >80 yrs)

2.All patients of both sex of 18 years and above, residing presently in the geographical area RHTC, GMCH, Udaipur

Exclusion criteria:Patients who denied for interview

METHODOLOGY

The information was collected on a pre-tested, pre-structured, well designed scheduled questionnaire (in English) prepared for further statistical analysis to fulfill the objective of study. The subjects were explained the purpose of the study which was interview based and they were assured for secrecy and confidentiality of the information provided by them, after obtaining the written consent.

Results and observation

Table 7: Prevalence of Hypertension

B P Status	Frequency	Percentage
Normotensives	628	52.33
Hypertensives	572	47.67
Total	1200	100

The above table shows the prevalence of hypertension among the study subjects. 572 study subjects out of 1,200 were hypertensives indicating that the prevalence of hypertension in the area studied was 47.67%.

Table 2: Distribution of Subjects by Blood Pressure Status and Age.

AGE GROUP	HYPERTENSIVE		NORMOTENSIVES		TOTAL		P value
	NO.	%	NO.	%	NO.	%	
18-27	47	44.34	59	55.66	106	8.83	0.63
28-37	125	47.17	140	52.83	265	22.08	
38-47	139	45.13	169	54.87	308	25.67	
48-57	165	49.7	167	50.3	332	27.67	
≥ 58	96	50.79	93	49.21	189	15.75	
Total	**572**		**628**		**1200**	**100**	

The above table shows the prevalence of hypertensives, when compared to normotensives, in various age groups. The prevalence was found highest amongst those aged 38-57 (53.33%) and lowest amongst those aged between 18 – 28 years (8.83%) thus showing an increase in prevalence of hypertension with increasing age.Out of 572 hypertensive, majority of hypertensive (28.85%) were aged 48-57 years followed by 38 – 47 years (24.30%), 28 - 37 years (21.85%) and more than 58 years (16.78%). Thus insignificant association was found between age and status of blood pressure (Chi square value = 2.582, P = 0.63)

Table 3: Distribution of Subjects by Blood Pressure Status and Gender

GENDER	HYPERTENSIVE		NORMOTENSIVE		TOTAL		P value
	NO.	%	NO.	%	NO.	%	
MALE	337	47.8	368	52.2	705	58.75	0.95
FEMALE	235	47.48	260	52.53	495	41.25	
Total	**572**		**628**		**1200**	**100**	

The above table shows the relation of hypertension with gender. Out of 705males, 337 (47.8%) were hypertensive whereas 368 (52.2%) were normotensives.

Table 4: Distribution of Subjects by Blood Pressure Status and Religion

RELIGION	HYPERTENSIVE		NORMOTENSIVE		TOTAL		P value
	NO.	%	NO.	%	NO.	%	
HINDU	400	42.46	542	57.54	942	78.5	< 0.001
MUSLIM	140	69.31	62	30.69	202	16.83	
CHRISTIAN	4	57.14	3	42.86	7	0.58	
JAIN	7	31.82	15	68.18	22	1.83	
SIKH	21	77.78	6	22.22	27	2.25	
Total	**572**		**628**		**1200**	**100**	

The above table shows the distribution of hypertensive based on their caste. Out of total 1200 study subjects' majority were Hindus 78.5% followed by 16.83% Muslims. Among 942 Hindus, 57.54 were normotensive and 42.46% were Hypertensive whereas among 202 Muslims, 69.31% were hypertensive and 30.69% were normotensive.Thus it was observed more cases of Hypertension was observed in Muslims, Christian and sikh than Hypertensive whereas normotensive were more in Hindu and Jain community than Hypertensive. Thus significant association was found between religion and status of blood pressure (Chi square value = 238.38, P < 0.001)

Table 5: Distribution of Subjects by Blood Pressure Status and Marital Status

MARITAL STATUS	HYPERTENSIVE		NORMOTENSIVE		TOTAL		P value
	NO.	%	NO.	%	NO.	%	
MARRIED	546	49.01	568	50.99	1114	92.83	<0.001
UNMARRIED	26	30.23	60	69.77	86	7.17	
Total	**572**		**628**		**1200**	**100**	

The above table shows the distribution of hypertensives based on their marital status. The prevalence of hypertension was high amongst the married (49.01%) and it was 30.23% in unmarried group. The data indicates that the risk of hypertension is more in married group, which was found to be statistically significant (Chi square = 10.547, P<0.001).

Table 6: Distribution of Subjects by Blood Pressure Status and socioeconomic status

Socio-Economic Status	HYPERTENSIVE		NORMATIVES		TOTAL		P value
	NO.	%	NO.	%	NO.	%	
Upper Class – I	9	90.0	1	10.0	10	0.83	
Upper Middle Class – II	466	46.05	546	53.95	1012	84.33	
Lower Middle Class – III	45	45.92	53	54.08	98	8.17	<0.001
Upper Lower Class – IV	24	48.0	26	52.0	50	4.17	
Lower Class –V	28	93.33	2	6.67	30	2.5	
Total	**572**		**628**		**1200**	**100**	

The above table shows relationship of hypertension with respect to socioeconomic status (B.G.Prasad) of the study subject. Out of 1200 study subjects majority.84.33% were from upper middle class and only 0.83% from Upper Class. The prevalence of hypertension was highest in the Upper class (90%) followed by Upper Middle Class (46.05%) followed by that in Lower Class (45.92%). The prevalence of hypertension in the lower middle class (27.42%) and upper lower class (48%) was almost similar. Apparently, there was statistical significance (Chi square = 33.45, P < 0.001).

Table 7: Distribution of Subjects by Blood Pressure Status and Educational Status

EDUCATIONAL STATUS	HYPERTENSIVE		NORMATIVES		TOTAL		P value
	NO.	%	NO.	%	NO.	%	
Illeterate	157	48.61	166	51.39	323	26.92	

Primary	102	79.69	26	20.31	128	10.67	<0.001
Secondary	81	43.08	107	56.92	188	15.67	
Sr. Secondary	73	45.34	88	54.66	161	13.42	
Graduate	159	39.75	241	60.25	400	33.33	
Total	**572**		**628**		**1200**	**100**	

The above table shows the distribution of hypertensive based on their Educational status. The number of illiterate hypertensive was 157 out of 323 i.e. 48.61% and 51.39% were normotensive. From the total 572 hypertensive, 415(72.55%) were literate and 157(27.45%) were illiterates. Apparently the difference was statistically significant (Chi square value = 64.71, $p < 0.001$).Among the literates, hypertension was more prevalent in graduate 159 (27.8%) and primary/middle 102 (17.83%) as compared to that in Secondary 81 (14.16%).

TABLE 8: Distribution of Subjects by Blood Pressure Status and Occupational status

OCCUPATIONAL STATUS	**HYPERTENSIVE**		**NORMOTENSIVE**		**TOTAL**	
	NO.	**%**	**NO.**	**%**	**NO.**	**%**
Labour class	28	16.87	138	83.13	166	13.83
Service class	232	54.72	192	45.28	424	35.33
Business class	82	60.29	54	39.71	136	11.33
Farmer	7	21.88	25	78.12	32	2.67
Housewife/ unemployed	223	50.45	219	49.55	442	36.83
Total	**572**		**628**		**1200**	**100**
P value	**<0.001**					

Table 8 shows relation of Hypertension with Occupation. It has been observed that out of 1200 study subjects, majority were unemployed/housewives 442 (36.83%) and service class 424 (35.33%).The prevalence of hypertension in unemployed was 38.98% (223 subjects) and 40.56% (232 subjects) in service

class. It was also observed that 82 (14.34%), business class 28(4.9%) and only 7(1.22%) farmers were hypertensive.Thus significant association was found between occupational status and status of blood pressure (Chi square value = 90.174, P < 0.001)

Conclusion

Hypertension is the commonest cardiovascular disease, posing a major public health challenge to societies in socio economic and epidemiological transition. India, undergoing this transition is burdened with problem of increasing prevalence of hypertension especially in rural areas. There is a need for community diagnosis of such health problems for which proper preventive measures can be undertaken thus minimizing health burden to the society.

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