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Dietary intake and body mass index of adult hypertensive patient

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Abstract

Hypertension is the most prevalent chronic disease, affecting more than 30% of adults aged 25 years worldwide. Descriptive Research Design was selected to study the stages of hypertension and anthropometric measurements. Random sampling method was used to take sample and 24 hour dietary recall method was used to take the dietary intake. Parentages were calculated for the categories of hypertension and BMI and mean was calculated for the average of dietary intake. It was found that Males were more hypertensive than female. Hypertensive patient (Male= 57.14%, Female= 42.85%) had stage 2 hypertensive as compared to other stage of hypertension.

Hypertension patients (Male= 57.38% Female= 57.16%) were overweight. The average intake of sodium and fat was more than RDA. It was concluded that high body mass index and high intake of fat and sodium were important risk factors which could be the contributors in the development of hypertension.

Keywords: Hypertension, dietary intake, body mass index

1. Introduction

Hypertension is the most prevalent chronic disease, affecting more than 30% of aged >25 years worldwide [1]. In India, the prevalence of hypertension is increase by about 30 times in urban population and by about 10 times among in rural population and the prevalence of hypertension is slightly higher among man than woman [2]. According to WHO, Hypertension is also known as high blood pressure, is condition in which the blood vessels have persistently raised pressure. Blood pressure is created by the force of blood pushing against the wall of blood vessels (arteries) as it is pumped by the heart. The higher the pressure the harder the heart has to pump [3].

Hypertension is the most common condition and leads to myocardial infarction, stroke, renal failure and death if not detected early and treated appropriately. The following staging system which are based upon appropriately Measured blood pressure, were suggested is 2017 by the American college of cardiology / American heart Association (ACC/AHA) [4].

Normal Blood Pressure	Systolic <120mm Hg and diastolic <80mmHg
Elevated Blood Pressure	Systolic 120 to mm Hg and diastolic <80mmHg
Stage 1 Hypertension	Systolic 130 to 139 mm Hg and diastolic 80 to 89 mm Hg
Stage 2 Hypertension	Systolic 140 to 159 mm Hg and diastolic 90 to 99 mm Hg
Stage 3 Hypertension	Systolic ≥160 mm Hg Diastolic ≤100 mm Hg

Different life style behaviors have been shown to be associated with the prevalence of Hypertension. On this basis, the following 5 non pharmacological measures are usually recommended with in worldwide guidelines, with the aim of preventing and improving the risk of complication related to high BP [5]: Maintaining or attaining a normal weight, that is a body mass index (BMI) of <25 Kg/m², increasing physical activity, limiting alcohol consumption to 2 drinks a day for men and 1 drink a day for women, controlling dietary salt intake at 6gm/day, and having a dietary approach to stop hypertension, that is a diet rich in fruits, vegetables and low fat dairy products and reduced in saturated and total fat [6].

1.1 Objective

- To study the dietary intake of hypertensive patients.

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- To study the stages of hypertension among the adults.
- To study the body mass index of hypertensive patients.

2. Materials and Methods

2.1 Design of study: The present study was descriptive in nature. The study was conducted on adults of Bijnor city in Uttar – Pradesh.

2.2 Tools: A pre – tested questionnaire was used and 24 hour dietary recall method was used to assess the dietary intake of hypertensive patients.

2.3 Sample: The sample of the present study was comprised 35 adults (1 female and 21 male) were selected randomly which represented the population of the study.

2.4 Statistical Techniques: In order to analysis the data, mean and percentage were employed.

3. Results and Discussion

The results of the study were compiled and discussed below-

a) Stage of hypertension in respondents: Among hypertensive patients, the majority was classified as stage 2 hypertension, followed by 40%. Majority of the male and female respondents had stage 2 hypertension i.e. 57.14% and 42.85% respectively. 28.57% of male and 21.42% of female had stage 1 hypertension, 21.42% of male and 14.28% of female had stage 3 hypertension. Rest of the respondents (19.04% male and 21.42% female) belonged to Elevated BP. A study was conducted by Sharma P and Pal D (2017)^[8] showed that the prevalence of hypertension was significantly higher in males as compared to females.

Table 1: Distribution of Respondent according the stage of hypertension

S. No	Systolic & Diastolic Blood Pressure (mm Hg)	Stage of Hypertension	Female		Male		Total	
			N	%	N	%	N	%
1.	120-129 and 80	Elevated BP	3	21.42	4	19.04	7	20
2.	130-139 and 80-89	Stage 1 hypertension	3	21.42	6	28.57	9	25.71
3.	140-159 and 90-99	Stage 2 hypertension	6	42.85	8	57.14	14	40
4.	>_ 160 and >_ 100	Stage hypertension	2	14.28	3	21.42	5	23.80

(b) Body mass index

According to BMI classification among the hypertensive patients the majority (57.14%) was classified as overweight

followed by 22.85% as normal and 17.14% as obesity and the small group was having underweight (7.14%)

Table 2: Distribution of the respondent as per the BMI Classification

BMI (Class)	Category	Female		Male		Total	
		N	%	N	%	N	%
Underweight	<18.50	1	7.14	0	0	1	7.14
Normal	18.50-24.9	3	21.42	5	23.80	8	22.85
Overweight	25.0-29.9	8	57.16	12	57.38	20	57.14
Obesity	≥30	2	14.28	4	19.04	6	17.14

It was found that majority of male and female hypertensive patient (57.38% & 57.16% respectively) had overweight while 19.04% of male and 14.28% of female had obesity and only 7.14% female were underweight. 23.80% of male and 21.42% of female had normal weight. A study was conducted by Lelong *et al.* (2014)^[9] and it showed that obese people are more likely to be hypertensive and BMI had the strong associations with BP level.

(c) Dietary intake: The dietary intake of respondent provides relevant information regarding their nutrient's intake in a day with reference to energy, protein, fat, carbohydrate, sodium and iron. Average of nutrient intake of the respondents revealed that their intake of nutrient was higher than RDA as compared to respective recommended values except carbohydrate in female.

Table 3: Average Nutrient Intake per day by adults of Bignor City.

Parameters	Energy (KCal)	Protein (gm)	Fat (gm)	CHO (gm)	Sodium (mg)	Iron (mg)
Intake Male	2495	62.5	41.42	379.85	2058	40.21
RAD	2320	60	25	377	1500	17
Difference	+175	+2.5	+16.42	+2.85	+558	+13.21
Intake female	2015	58	35	302	1879.04	27.66
RDA	1900	55	20	308	1500	21
Difference	+115	+3	+15	-6	+379	+ 6.66

4. Conclusion

From the above findings and analysis, it was observed that among the hypertensive patient, the majority were males. Mostly adult had stage 2 hypertension. Majority of the hypertensive patient had the problem of overweight in both. The intake of fat and sodium were higher than the normal values in males than females. It was concluded that male were more obese than female and they were more hypertensive. So this showed that obesity is a risk factor of hypertension.

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