

Research Paper :

Association between hypertension and anthropometry

INDU, KUMARI ASHA AND ANANT KUMAR

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ABSTRACT

To fulfill the objectives of the study, 90 hypertensive patients were selected at random, who were attending cardiac clinic of Banaras Hindu University Hospital of Varanasi city. Anthropometric measurements *viz.*, height and weight of the sample was taken and recorded. Broca's index was used to compute desirable weight and body mass index (BMI) was computed to assess the degree of obesity. Assessment of body weight indicated that only 26.66% hypertensive had normal body weight, whereas 66.66% were designated as overweight and 6.66% were assessed as obese hypertensive. However, 73.33 per cent hypertensive were categorized under Grade I obesity and 26.66 per cent were identified as having normal body weight. Blood pressure level evinced that 80 per cent of them lie in the category of mild hypertension accompanied by 13.33 and 6.66 per cent moderate and severe hypertensive, respectively. Findings led to conclude that all the severe hypertensive were obese. However, majorities of the moderate (11.11%) and mild (55.55%) hypertensive were obese, whereas 24.44 and 2.22 per cent non-obese sample too were victims of mild and moderate hypertension, respectively.

See end of the article for authors' affiliations

Correspondence to:

INDU

P.G. Department of Home Science, Food and Nutrition, Tilka Manjhi Bhagalpur University, BHAGALPUR (BIHAR) INDIA

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Hypertension is elevated blood pressure. WHO defines hypertension is a condition in which systolic pressure exceeds 95mmHg. With diastolic pressures of 100 or more therapy should be initiated with drugs as well as diet. High blood pressure is not a disease but only a symptom indicating that some underlying disease is progressing. As the blood pressure increases the incidence of heart attack also increases.

The prevalence of hypertension in India has been reported as 50.9 and 69.9 per 1,000 in males and females, respectively in the urban population, and 35.3 and 35.9 per 1,000 in males and females, respectively in rural population.

Hypertension is considered as one of the major risk-factors for most forms of cardiovascular disease. It is a condition which has its own risk-factors. Risk factors for essential hypertension include age, genetic-factors, obesity, salt-intake, saturated fat, alcohol, physical inactivity, environmental stress and others.

The 'World Hypertension League' (1989 a and b) reported that obesity control has a definite potential for the prevention of hypertension. The League has stated that not all hypertensives are obese, and not all obese people have hypertension. Nevertheless, over a period of 10-15 years, at least 60% of overweight individuals will become hypertensive. The League suggested guidelines for management of obese hypertensives by weight reduction. The principal methods of weight reduction are

(a) change of diet, (b) behaviour modification and (c) exercise.

The present study was under taken with keeping in view the following important objectives: to assess per cent excess of normal body weight among hypertensive patients, to assess the degree of obesity prevalent among hypertensive, based on their Body Mass Index (BMI) and to find out mild, moderate and severe degree of hypertension among obese sample and subjects with normal body weight.

METHODOLOGY

The present study aimed to assess the association of hypertension with anthropometry. To fulfill the objectives of the study, 90 hypertensive patients were selected at random, who were attending cardiac clinic of Banaras Hindu University Hospital of Varanasi city. An interview schedule was developed for data collection. Anthropometric measurements *viz.*, height and weight of the sample was taken and recorded. Broca's index was used to compute desirable weight of the hypertensive according to their height. Body mass index (BMI) was computed to assess the degree of obesity among hypertensive patients (Gupta, 1995a, b and c).

Assessment of body weight:

An adult weighing 10 per cent more than the standard weight is overweight and 20 per cent more is obese.

Broca's Index – Height (cm) – 100 = Desirable wt. (kg)

Body Mass Index (BMI) : Weight (kg.) / Height² (m).

Grading of obesity can be done based on BMI.

Grade III - > 40 Grade II - 30 – 40

Grade I - 25 – 29.9 Not obese - < 25

FINDINGS AND DISCUSSION

It is evident from Table 1 that subjects having heights 164cm (30 to 39 and 50 to 59 years) had crossed the desirable weight range for their height. However, subjects in the age group of 60 to 69 and 70 to 79 years with height 166cm and 156cm, respectively were lying in the desirable weight range for their heights.

Assessments of body weight revealed that 6.66 per cent hypertensive were categorized as obese hypertensive because they were weighing 25 per cent more than the standard weight, whereas 66.66 per cent were overweight

and rest were having normal body weight.

Findings presented in Table 2 depict that 73.33 per cent hypertensive from age group 30 to 59 years and 80 to 89 years were categorized under Grade I obesity and 26.66 per cent were identified as having normal body weight according to their BMI values.

Assessment of blood pressure level (Table 3) of sample evinced that 80 per cent lie in the category of mild hypertension accompanied by 13.33 and 6.66 per cent moderate and severe hypertensive, respectively.

Findings led to conclude that all the severe hypertensive were obese. However, majorities of the moderate (11.11%) and mild (55.55%) hypertensive were obese, whereas 24.44 and 2.22 per cent non-obese sample too were victims of mild and moderate hypertension, respectively. It might be concluded that there has been a significant association observed between hypertension and anthropometry.

Table 1 : Age-wise and sex-wise distribution of hypertensive patients

Sr. No.	Age groups (years)	Average observed height (kg)	Average observed wt. (kg)	Desirable wt. (kg)	Desirable wt. range	% Excess of normal body wt.
1.	30-39 (6)	164	80	64	56.09- 71.91	25
2.	40-49 (30)	162	69	62	54.09-69.91	11.29
3.	50-59 (24)	164	72	64	56.09- 71.91	12.50
4.	60-69 (18)	166	68.50	66	58.09- 73.91	3.78
5.	70-79 (6)	156	60	56	48.05- 63.91	7.14
6.	80-89 (6)	168	75	68	60.09-75.91	10.29
	Mean	163.33	70.75	63.33		

±SD = 7.91

Figures in parentheses indicate numbers

Table 2 : Distribution of hypertensive patients according to BMI value

Sr. No.	Age groups (years)	Frequency (%)	BMI values	Grade of obesity
1.	30-39	6 (6.66)	29.85	Grade I
2.	40-49	30 (33.33)	26.33	Grade I
3.	50-59	24 (26.66)	26.86	Grade I
4.	60-69	18 (20.00)	24.90	Not obese
5.	70-79	6 (6.66)	24.69	Not obese
6.	80-89	6 (6.66)	26.59	Grade I

Table 3 : Distribution of Hypertensive according to degree of hypertension

Sr. No.	Age groups (years)	Frequency (%)	Mild	Moderate	Severe
1.	30-39	6 (6.66)	2 (2.22)	2 (2.22)	2 (2.22)
2.	40-49	30 (33.33)	26 (28.88)	2 (2.22)	2 (2.22)
3.	50-59	24 (26.66)	19 (21.11)	4 (4.44)	1 (1.11)
4.	60-69	18 (20.00)	17 (18.8)	1 (1.11)	0 (0)
5.	70-79	6 (6.66)	5 (5.55)	1 (1.11)	0 (0)
6.	80-89	6 (6.66)	3 (3.33)	2 (2.22)	1 (1.11)
	Total -	72 (80.00)		12 (13.33)	6 (6.66)

Authors' affiliations:

KUMARI ASHA, Department of Chemistry, Mahadeo Singh College, BHAGALPUR (BIHAR) INDIA

ANANT KUMAR, National Food Security Mission, KHAGARIA (BIHAR) INDIA

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