Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2014; 2(4C):1330-1333 **ISSN 2347-954X (Print)**
©Scholars Academic and Scientific Publisher
(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com **DOI:** 10.36347/sjams.2014.v02i04.036

Research Article

Incidence of Hypertension and Risk Factor Assessment among Sedentary and Labour Population of Punjab

Shikha Nagpal[1*], Naveenta Gupta[2]
[1]Associate Professor, Genesis Institute of Dental Sciences and Research, Ferozepur – 152001, India
[2]Associate Professor, Guru Gobind Singh Medical College, Faridkot – 151203, India

***Corresponding author**
Dr. Shikha Nagpal
Email: drshikha72@gmail.com

Abstract: The present study was undertaken to determine the incidence and intensity of hypertension in sedentary and labour population of Punjab. 1000 subjects were studied and they were divided into two groups i.e. group A (sedentary class) and group B (labour class). All the cases were in the age group between 35 to 55 years. On comparative evaluation, hypertension increased with age, sedentary life style, smoking, non vegetarian diet, BMI and male gender. In this study, it was found that the incidence of hypertension is higher in sedentary group of people as compared to labourers which is due to the fact that decreased physical activity is directly related to high blood pressure.
Keywords: Hypertension, Sedentary, Labour population, Age

INTRODUCTION

Blood pressure means the force exerted by the blood column against a limit area of the vessel wall. It is usually measured in millimeters of mercury. The term blood pressure is used without any further qualification to denote arterial blood pressure. When describing pressure in other types of blood vessels, the type of vessel is also mentioned e.g. capillary pressure, venous pressure.

Hypertension is defined quite arbitrarily as being present when casual arterial blood pressure persistently exceeds 150/90 mmHg. Hypertension may be benign or malignant. It is also divided into primary (essential) and secondary. Hypertension is classified as essential when the causes are generally unknown. Essential hypertension is the most prevalent form of hypertension accounting for 90% of all cases of hypertension [1].

Hypertension is classified as secondary when some other disease process is involved in its causation e.g. Renal diseases (renal artery stenosis), glomerulonephritis, pyelonephritis, radiation nephritis, renal tuberculosis, renal cysts, hydronephrosis, renal tumors, renal failure. Environmental factors such as pain, emotion, full bladder, posture, sleep all influence blood pressure [2].

Of all the physiological conditions exercise has the most powerful effect on arterial pressure. The effectiveness of most physical training varies with its intensity. Elzbereta and Broun *et al.* [3] have given the same results after studying the effect of brief additional regular activity of low intensity upon the cardio respiratory performance of sedentary women.

Physical training is known to build up muscles in the body at the expense of fat to strengthen the heart and lower heart rate but no clearly defined long term blood pressure change have yet been proved [4]. Long term effect of exercise relationship to hypertension is uncertain although exercise training can lower blood pressure moderately [5].

MATERIALS AND METHODS

The present study was conducted to find the incidence of hypertension in different classes, businessmen, serving class and labourers and also attempt has been made to find the role of "Diet", "Smoking", "Family history", "Age" and "Body mass index". 1000 subjects (age group 35-55 years) were considered for the above project. 500 subjects were taken from sedentary profession; both businessmen and serving (clerks, bank employees) and 500 subjects from the labour group (labourers, rickshaw pullers).

They were divided into two groups.

Group A (sedentary class) which is further subdivided

Group A_1 : Two hundred male sedentary businessmen

Group A_2: Two hundred male sedentary serving subjects

Group A_3: Fifty sedentary housewives

Group A_4: Fifty sedentary serving housewives

Group B (labour class) which is further subdivided into
Group B_1: Four hundred male labourers
Group B_2: One hundred female labourers

Following methods were used for measurement of blood pressure:

- A rough estimation of systolic blood pressure with palpatory method was done before the actual measurement of the blood pressure.
- Auscultatory method with a standard mercury sphygmomanometer checked for the accuracy with a well width of 12.5 cm. First appearance and fifth disappearance Korotkoff sounds were used to designate systolic and diastolic pressure.

Blood pressure above 150/90 mmHg was closed as hypertensive, pressure consistently between 150-160 mmHg systolic and 90-95 mmHg diastolic was referred as borderline.

Before recording blood pressure, the subject was made to take rest for at least 5 minutes and he should not have taken tea, coffee half an hour before recording the blood pressure. The subjects having raised blood pressure were repeatedly examined and three readings were taken to confirm raised blood pressure.

Identification data, socio economic status, intake of tea, coffee, alcohol, cigarette smoking, any history suggestive of hypertension and family history of hypertension, brief general physical examination, weight, height were obtained and recorded on a proforma.

RESULTS

Both systolic and diastolic blood pressures were recorded in sitting position. Subjects having systolic blood pressure less than 150 mmHg and diastolic blood pressure less than 90mmHg were considered healthy subjects whereas the subjects having systolic and diastolic blood pressure more than 150 mmHg and 90 mmHg respectively were considered as diseased subjects.

Table 1: Showing the number of hypertensive cases among various groups

Group	Total cases	Hypertensive cases	% age
A1	200	76	38.0
A2	200	36	18.0
A3	50	3	6.0
A4	50	3	6.0
B1	400	23	5.5
B2	100	6	6.0
Total	1000	147	

Table 2: Incidence of hypertension in different age groups

Age group	Age	Total No. of cases	No. of cases	% age
I	35-45	457	25	17.0
II	46 and above	543	122	83.0
Total		1000	147	100.0

Out of 1000 cases, 147 cases were found to be suffering from hypertension, out of which 25 cases which constitute 17% were of age group between 35 to 45 tears whereas 122 cases which constitute 83% of total were of age group between 46-55 years. It is evident that the incidence of hypertension is much higher in elder people as compared to younger ones.

Table 3: Smoking among hypertensives

Habit smoker/non smoker	No. of cases	% age
Smoker	86	59.0
Non smoker	61	41.0
Total	147	100.0

Incidence of smoking among hypertensive cases was found as follows:
Smokers were 59% i.e. 86 cases
Non smokers were 41% i.e. 61 cases

Table 4: Role of diet (among hypertensives)

Diet	No. of cases	% age
Vegetarian	45	30.0
Non vegetarian	102	70.0
Total	147	100.0

45 cases were found to be vegetarian that constitutes 30% and 102 cases (70%) were non vegetarian.

Table 5: Incidence of available family history among hypertensives

Family history	No. of cases	% age
Positive	77	52.0
Negative	70	48.0
Total	147	100.0

The family history was positive in 77 cases that constitute 52% whereas it was negative in 70 cases that constitute 48%.

Table 6: Comparison of mean blood pressure with body mass index in hypertensive cases

Group	No. of cases	Mean systolic pressure and range	Mean diastolic pressure and range	Mean body mass index
A1	76	164.81 ± 2.43 (150-190)	110.0 ± 2.33 (90-120)	31.11
A2	36	163.61 ± 2.78 (150-190)	100.0 ± 2.42 (92-100)	29.03
A3	3	159.0 ± 1.60 (150-175)	97.0 ± 1.43 (95-100)	28.50
A4	3	159.5 ± 1.42 (150-170)	96.0 ± 0.86 (95-100)	27.00
B1	23	161.0 ± 1.44 (140-180)	102.0 ± 1.39 (90-110)	20.30
B2	6	159.3 ± 1.30 (150-170)	96.0 ± 0.90 (95-105)	23.08

DISCUSSION

The increasing morbidity and mortality from heart disease is a biggest challenge to the medical scientists all over the world. Hypertension is one of the most common factors causing atherosclerosis and narrowing of the blood vessels.

In our study we observed that the incidence of hypertension was more in people who had sedentary lifestyle than in people doing regular exercise. Exercise increases blood flow through all arteries of the body, which leads to release of natural hormones and cytokines that relax blood vessels, which in turn lowers blood pressure. Hypertension was significantly associated with increase in age in our study and the finding was consistent with several studies [6-9]. Increase in age decreases elasticity of the blood vessels as arteriosclerosis sets in.

The prevalence of hypertension in this study was slightly higher among males compared to that in females. In the present study, association of hypertension was statistically significant with family history of hypertension and increasing body mass index and similar findings were observed in studies done by Rajasekar *et al*. [10] and Saxena *et al*. [11]. In obese persons the blood flow in the body should increase in order to supply oxygen and nutrients to all the tissues. As the volume of blood circulated through the blood vessels increases, so does the blood pressure also increases.

Increased salt intake and consumption of mixed/non vegetarian diet was found to be associated with hypertension in our study and similar observation was found in study by Gupta *et al*. [7]. Increased sodium chloride in the diet can lead to fluid retension, and also causes the arteries in the body to constrict leading to increase in blood pressure. Association of increased salt intake and hypertension was also observed in studies done by Ghosh *et al*. [6] and Saxena *et al*. [11].

In the present study no significant association was observed between hypertension and consumption of tobacco and alcohol, whereas in some other studies [12, 13] tobacco smoking and alcohol consumption were significantly associated with hypertension. This may be because of variations in consumptions of tobacco and alcohol among males and females as none of the females in our study reported using tobacco and alcohol.

CONCLUSION

In this study it was found that the incidence of hypertension is higher in sedentary group of people as compared to labourers. In the age group of 35-45 years the incidence of hypertension is much lower as compared to 45-55 years from which it is evident that hypertension usually starts often the age of 45. Vegetarians and nonsmokers have low incidence of hypertension as compared to non vegetarians and smokers. The body mass index is directly related to the

incidence of hypertension. In males the severity of hypertension is more as compared to females.

REFERENCES

1. Park JE; Textbook of preventive and social medicine. 14th edition, 1973: 90-331.
2. Gergory P, Gergen PJ, Carrollet M; Hypertension prevalence and the status of awareness, treatment, and control in the Hispanic Health and Nutrition Examination Survey (HHANES), 1982-84. Am J Public Health., 1990; 80(12): 1431-1436.
3. Elzbreta B, Brown JF Cotes; The effect of brief additional regular activity of low intensity on cardiopulmonary performance of sedentary women. J of Physiol., 1980; 306.
4. Kannel WB; Clinical evaluation and management of hypertension cardiovascular problems in everyday practice, Ciba-Geigy, 1988.
5. Schroeder SA; Current medical diagnosis and treatment. Prentice-Hall International, 1990.
6. Ghosh A, Sarkar D, Mukherji B, Pal R; Prevalence and risk correlates of hypertension among adult rural population in Bihar. Ann Trop Med Public Health., 2013; 61): 71-75.
7. Gupta SK, Dixit S, Singh AK, Nagaonkar S, Malik N; Prevalence and predictors of hypertension: A cross sectional study among people coming to a tertiary health care facility in Garhwal-Uttarakhand. Ind J Community Health., 2012; 24(4): 274-9.
8. Madhu B, Srinath KM, Ashok NC; Hypertension: Prevalence and its associated factors in a rural south Indian population. Ind J Pub Health Res and Development., 2012; 3(4): 105-9.
9. Bhardwaj SD, Sinha U, Shewte MK, Khadse JR, Bhatkule PR; Prevalence, awareness, treatment and control of hypertension among the people above 15 years in rural area Nagpur Maharashtra – A cross sectional study. Natl J Community Med., 2012; 3(2): 213-217.
10. Rajasekar VD, Krishnagopal I, Mittal A, Singh Z, Purty AJ, Binu VS; Prevalence and risk factors for hypertension in a rural area of Tamil Nadu, South India. Ind J Med Spec., 2012; 3(1): 12-17.
11. Saxena P, Saxena V, Saxena Y; Bio-social factors associated with hypertension in Hilly population of Tehri Garhwal. Ind J Community Health 2011; 23(2): 81-3.
12. Bansal SK, Saxena V, Kandpal SD, Gray WK, Walker RW, Goel D. The prevalence of hypertension and hypertension risk factors in a rural Indian community: A prospective door to door study. J Cardiovasc Dis Res., 2012; 3(2): 117-23.
13. Mahmood SE, Bhardwaj P, Srivastava JP, Mathur KP, Zaidi ZH, Shaifali I; Sociodemographic risk factors of cardiovascular disease in rural Lucknow. Int J Med Public Health., 2012; 2(1): 56-61.