To Study the Prevalence of Hypertension among Urban Population of Faridkot District – A Camp Based Approach

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Abstract

Background: *Hypertension is estimated to cause 4.5% of current global disease burden and is as prevalent in many developing countries, as in developed world. Presently 23 % men and 22% women above 25 years of age are Hypertensive in India and it is likely to increase exponentially in near future. No authentic data of giving information about hypertension in Punjab is Available which resulted in planning of present study.Aim of the study to assess the prevalence of Hypertension and determining the association between hypertension and various anthropometric parameters.*

Materials and Methods: *A cross sectional study was conducted in city Faridkot using camp based approach. 20 camps at different sites were organized in order to cover the whole population of the city. The parameters BP, height, weight were recorded for each participant and BMI was calculated. The Data was compiled and analyzed using SPSS 20.0.*

Results: *It was found that out of 1874 patients, 474(25.3%) shows high systolic blood pressure where as 477(25.5%) shows high diastolic blood pressure. Mean age of hypertensives was 45.24 yrs. Hypertension was found to be significantly higher among males population. Higher BMI was also significantly associated with Hypertension.*

Conclusions: *From the present study we conclude that with the increase in the body mass index there is increase in the systolic and diastolic blood pressure and the results come out to be highly significant.*

Keywords - *Prevalence, Hypertension, Age, BMI, Camp based Approach*

I. INTRODUCTION

Hypertension (HTN) becoming an important public health problem worldwide. It is the third leading killer in the world and is responsible for one in every eighth death. Hypertension is estimated to cause 4.5% of current global disease burden and is as prevalent in many developing countries, as in developed world. Presently 23 % men and 22% women above 25 years of age are Hypertensive in India and it is likely to increase exponentially in near future. Various lifestyles related and modifiable risk factors for hypertension are Obesity, increased salt, Saturated fat and alcohol intake, reduced physical activity. Age, sex, genetic factors and ethinicity also pose to be risk factors for hypertension. [1] Hypertension is the most common, most potent universal contributor to cardiovascu- lar mortality. Elevated blood pressure, labile or fixed, systolic or diastolic, at any age, in either sex is a contributor to all forms of cardiovascular diseases. (2) Body mass index (BMI) is positively and independently associated with morbidity and mortality from hypertension, cardiovascular disease, type II diabetes mellitus and other chronic diseases.8 In Asian populations, a strong association has been depicted between BMI and mortality.A similar association has also been demonstrated among Caucasian populations.Obesity /high BMI has been identified as single largest risk factor associated with hypertension and its related morbidity and mortality. [3] Obese persons are approximately 6 times as likely to develop heart disease as normal weighted persons. Various morbidities associated with hypertension are myocardial infarction, heart failure , stroke, transient ischemic attack ,renal failure etc. [4]Population based preventive approaches are, thus, central for the management of elevated BP in developing countries, where clinic-based care for complications is not a feasible option[5-7]. Hypertension also places an excessive financial burden on populations and health systems, consuming scarce resources[8] No authentic data of giving information about hypertension in Punjab is Available which resulted in planning of present study.Aim of the present study was to assess the prevalence of Hypertension and determine the association between Hypertension and various anthropometric parameters

II. MATERIAL AND METHODS

A cross sectional study was conducted in city Faridkot using camp based approach. Prior advertisement through local leaders and posters about the date of camp was given**.** 20 camps at different sites were organized in order to cover the whole

population of the city. The people visiting the camp site were included in the study. The relevant socio-demographic information includes age, sex; address was collected on a pretested & self structured survey schedule.The parameters BP, height, weight were recorded for each participant and BMI was calculated.

A. Blood Pressure

Two BP readings was taken, one before the interview and second after the interview. The auscultatory method of BP monitoring with a properly calibrated and validated instrument (Diamond Super Deluxe: BPMR 130) was used. Participant was seated quietly for at least 5 minutes on the chair with feet on the floor and the arm supported at the heart level. An appropriate size cuff (cuff bladder encircling at least 80% of the arm) was used to ensure accuracy. SBP was the point at which the first Korotokoff's sound was heard (phase 1) and DBP was the point at which the Korotokoff's sound disappeared. (Phase 5)

B. Hypertensive

Hypertension was defined on the basis of Joint National Committee (JNC) VII criteria. If BP was recorded to be >140/90, the person was labeled as hypertensive.

C. Height

The participant was made to stand on a hard and leveled surface with a wall behind. He/she was not allowed wearing any footwear and headgear. He/she was asked to face the examiner and to keep the feet together. His heels were made to touch the wall and knees were kept straight. He was asked to look straight so that the external auditory meatus and lateral canthus of the eye come in straight line. Sufficient pressure was given to compress the hair with the help of a hard board and the reading was taken keeping eyes at the same level .It was done by marking the point on the wall & then measuring the height of this mark by a non stretchable metallic tape up to nearest 0.1cm.

D. Weight

A portable weighing machine (Wama Digital Body Weighing Scale WMWS01) was used for this purpose, which was standardized against known weight. The scale was kept on a hard and even surface and zero error was ensured. The participant was asked to remove the footwear and step on scale with one foot on each side of the scale. He/she was asked to stand still keeping his face forward and placing arms on the side. He/she was asked to wait until asked to step off. Weight was measured in kilograms up to nearest 100g.Body mass index (BMI) was calculated using the formula Weight/ Height (in meters square). Using the WHO criteria given in the year 1998, Obesity was defined as a BMI greater than or equal to 30 kg/m2. An association was established among the Blood pressure status and age, sex and BMI after compiling the data using SPSS 20.0.

III. RESULTS

Total of 1874 people visited the entire camp site and average attendance of each camp was 94%. Out of all attendees 63% were males and 37% were females. Majority of attendees were illiterate (32.9%) followed by educational level up to 8^{TH} standard (25.6%), higher secondary (19.5%), Graduate (14.6%) and Postgraduates formed only 4.1% of study population. As far as Age distribution was concerned majority of population belonged to age group 41-60 years i.e. 41% and minimum were from age group 81 &above (0.9%). majority of population ie 44% had normal BMI ranging 18.5-25 kg/m^2.25.3% of Participants had Systolic Blood Pressure more than 140mm Hg and somewhat similar i.e. 25.5% had Diastolic Blood Pressure more than 90 mmHg. Out of 1182 males 308 i.e. 26% and 24% of females had systolic blood pressure more than 140 mmHg whereas 29 % of males and 18.9% of Females had Diastolic blood Pressure more than 90 mmHg.Table 3 and 4 shows association of systolic Blood Pressure with BMI. Out of total 1027 participants with BMI less than 25, 225 (22%) were having systolic blood pressure more than 140 rest all are non hypertensive. All participants with BMI > than 25 i.e 847, 249 (29%) were having systolic blood pressure more than 140 rest all are non hypertensive. When odds ratio is being calculated it seems that those who are having BMI more than 25 are 1.48 times higher risk of developing systolic hypertension.Table 5 and 6 shows association of diastolic Blood Pressure with BMI. Out of total 1027 participants with BMI less than 25, 208 (%) were having diastolic blood pressure more than 90 rest all are non hypertensive. All participants with BMI > than 25 i.e 847, 269 (29%) were having diastolic blood pressure more than 90 rest all are non hypertensive. When odds ratio is being calculated it seems that those who are having BMI more than 25 are 1.83 times higher risk of developing diastolic hypertension.

TABLE 1:DISTRIBUTION OF SYSTOLIC BLOOD PRESSURE ACCORDING TO GENDER

S.NO	GENDER	SYSTOLIC BP LESS THAN 140	SYSTOLIC BP MORE THAN 140	TOTAL
1	MALE	874	308	1182
2	FEMALE	526	166	692
3	TOTAL	1400	474	1874

Table 2:DISTRIBUTION OF DYSTOLIC BLOOD PRESSURE ACCORDING TO GENDER

S.NO	GENDER	DYSTOLIC BP LESS THAN 90	DYSTOLIC BP MORE THAN 90	TOTAL
1	MALE	836	346	1182
2	FEMALE	561	131	692

3	TOTAL	1397	477	1874

Table 3:DISTRIBUTION OF SYSTOLIC HYPERTENSIVES ACCORDING TO BMI <25.

S.NO	SYSTOLIC BLOOD PRESSURE	<18.5	18.5-25	TOTAL
1	LESS THAN 140	169	633	802
2	MORE THAN 140	33	192	225
3	TOTAL	202	825	1027

Table 4:DISTRIBUTION OF SYSTOLIC HYPERTENSIVES ACCORDING TO BMI >25.

S.N	SYSTOLIC BLOOD PRESSURE	25-30	30-35	35-40	>40	TOTAL
1	LESS THAN 140	389	142	48	19	598
2	MORE THAN 140	145	69	21	14	249
3	TOTAL	534	211	69	33	847

	HYPERTENSIVE	NON HYPERTENSIVE
EXPOSED	249	598
NON EXPOSED	225	802

Odds ratio: 1.48

Table 5:DISTRIBUTION OF DIASTOLIC HYPERTENSIVES ACCORDING TO BMI < 25

S.NO	DIASTOLIC BLOOD PRESSURE	<18.5	18.5-25	TOTAL
1	LESS THAN 90	172	647	819
2	MORE THAN 90	30	178	208
3	TOTAL	202	825	1027

Table 6:DISTRIBUTION OF DIASTOLIC HYPERTENSIVES ACCORDING TO BMI >25

S.NO	DIASTOLIC BLOOD PRESSURE	25-30	30-35	35-40	>40	TOTAL
1	LESS THAN 90	371	149	39	19	578
2	MORE THAN 90	163	62	30	14	269
3	TOTAL	534	211	69	33	847

	HYPERTENSIVE	NON HYPERTENSIVE
EXPOSED	269	578
NON EXPOSED	208	819

Odds ratio: 1.83

IV. DISCUSSION

The incidence of hypertension depends on its definition. The prevalence rates have been reported to have a wide range. In the present study the prevalence of hypertension ranges from 25- 29% depending on different demographic factors such as gender, socioeconomic status, education, age etc. Other studies from India have reported higher prevalence while a lower prevalence has also been reported. [9, 10, 11, 12]

A significant association was observed between BMI and Systolic or Diastolic blood pressure among urban population of Faridkot city. Similar results were found in the study conducted by Tusfaye et at in Ethiopia. [12]

In summary, our survey shows that a high proportion of the urban population of Faridkot city is hypertensive, and those with probable hypertension have significant association with high BMI which in turn results from obesity due to unhealthy life style practices. It also suggests that many hypertensives would comply with their physicians' instructions once they were made aware of their problem. But further population-based studies are definitely needed, in order to test these summary statements and their generalisation. Such studies may help determine the potential benefits of well-managed hypertension screening programmes.

V. CONCLUSION

From the present study we conclude that with the increase in the body mass index there is increase risk of development of systolic and diastolic blood pressure and the results come out to be highly significant.Active steps should be taken to train and sensitize the medical and paramedical personnel about identifying symptoms of hypertension and its complications in the primary care settings itself and periodical follow up should be given. Vulnerable groups must be identified and appropriate preventive measures like awareness creation with regard to regular checkups and medication. Suitable IEC (Information, Education and Communication) activities must be formulated to sensitize the vulnerable population for seeking immediate health care as and when the symptoms arise.Policy makers can consider encouraging community participation by involving the Non-Governmental Organizations, Women Self Help Groups and Public Private Partnerships with the support of the grass root level health workers in spreading the awareness of hypertension and its complications.

REFERENCES

[1] park k. hypertension.classification of hypertension by extent of organ damage .textbook of preventive and social medicine;19th edition. P:310.

[2] Kannel WB. Role of blood pressure in cardiovascular disease—The Framingham Study. Angiology 1975, 26: 1-14. Pi-Sunyer FX. Medical hazards of obesity. Ann Intern Med 1993; 119: 655–60.

[3] park k. hypertension.risk factors for hypertension. textbook of preventive and social medicine; 19th edition.P:312-3.
[4] Whitworth JA, World Health Organization, International Society of Hypertension Writing Group. World Health Organization/International Society of Hypertension statement on management of hypertension. J Hypertens 2003; 21: 1983–92.
[5] MacMahon S, Neal B, Rodgers A. Hypertension – time to move on. Lancet 2005; 365: 1108-9.
[6] Jackson R, Lawes CM, Bennett DA, Milne RJ, Rodgers A. Treatment with drugs to lower blood pressure and blood cholesterol based on an individual's absolute cardiovascular risk. Lancet 2005; 365: 434–41.
[7] Collins R, Peto R, McMahon S, Herbert P, Fiebach NH, Eberlein KA et al. Blood pressure, stroke, and coronary heart disease. Part II. Effects of short-term reduction in blood pressure: overview of randomized drug trials in an epidemiological context. Lancet 1990;335: 827-83
[8] Gupta AK, Ahmad AJ. Normal blood pressure and the evaluation of sustained blood pressure elevation in childhood. Indian Pediatr 1990, 27: 33-42.
[9] Sachdev Y. Normal blood pressure and hypertension in Indian Children. Indian Pediatr 1984, 21: 41-48.
[10] Laroia D, Sharma M, Diwedi V, Belapurkar KM, Mathur PS. Profile of blood pressure in normal school children. Indian Pediatr 1989, 26: 531-536.
[11] Aggarwal VK, Sharon R, Srivastava AK, Kumar P, Panday CM. Blood pressure profile in children of age 3-15 years. Indian Pediatr 1983, 20: 921-5
[12] F Tesfaye, NG Nawi, H Van Minh, P Byass, Y Berhane, R Bonita5 and S Wall. Association between body mass index and blood pressure across three populations in Africa and Asia. Journal of Human Hypertension 2007, 21: 28–37