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PREVALENCE OF HYPERTENSION AND ITS RISK FACTORS AMONG ADULT POPULATION – A HOSPITAL BASED CROSS SECTIONAL STUDY

Community Medicine

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ABSTRACT

Background: The incidence and prevalence of systemic hypertension is on the rise and its causing the burden on the health system by its complications and years of potential life lost among the affected population. Objectives:To estimate the prevalence of hypertension and its risk factors among the study population.

Materials and Methods: The study was conducted among the adult patients above 30 years of age attending the OPD department during the two months period at the rural field practice area Meppayur Rural Health Training Centre. The calculated sample size was 329. After getting the informed consent about the study, they were interviewed with the pre tested questionnaire to collect the demographic factors, lifestyle factors, dietary habits and the anthropometric measurements like Blood pressure, height, weight, BMI, waist circumference, waist hip ratio.

Results: Mean age of the study population was 57 years, majority (57%) were females and 15% had family history of hypertension. Among the study population 7%, 9% and 18% were smokers, alcohol users and tobacco chewers. The mean BMI of the study population is 23.8Skg/m2, the mean (SD) waist circumference of the study population is 90.5cm, mean hip circumference of the study population is 91.5cm, the mean (SD) waist-hip ratio of the study population is .96. Prevalence of hypertension among study subjects found to be 25% and prevalence of pre-Hypertension found to be l0%.

Conclusion: The prevalence of hypertension was moderately high among this study population which needs to do a large scale community based studies.

KEYWORDS

Hypertension, Body mass Index, Waist circumference, Hip circumference, Waist Hip Ratio, Lifestyle changes, Physical activity

INTRODUCTION

Hypertension is defined as systolic blood pressure (SBP) of 140 mmhg or greater, diastolic blood pressure (DBP) of 90 mmHg or greater, or taking antihypertensive medication. There are two types of hypertension like Primary or essential hypertension with no underlying aetiology constitutes 95% of cases and secondary hypertension with underlying causes like Renal, vascular, endocrine etc.

Incidence in India. (REF)

- 25% of urban population and 10 % of rural population suffer from hypertension
- 70% of all hypertensive patients are stage I hypertension
- 12% of all hypertensive super from isolated systolic hypertension

The earliest sign of HTN: elevated Systolic /diastolic bp, morning occipital headache, dizziness, fatigue. Studies have established the benefits of secondary prevention programs in the treatment of Hypertension, with weight loss showing the most effective results. Detection, evaluation, and treatment of HTN, recommend that risk factors modification be tried initially, in most cases of mild hypertension. Appropriate initial therapy like weight loss through diet modification can be done as an initial step. Using change in blood pressure as outcome criteria, studies showed a decrease in blood pressure using weight reduction alone. Anti-hypertensives shows greatest reduction in blood pressure. In conclusion, many patients with mild hypertension can lower and maintain their blood pressure using weight loss as monotherapy. Patients with moderate to severe hypertension who are taking Antihypertensive medications should be placed on a weight loss program to not only lower blood pressure, but to possibly lower the require dosage of medication. Objective of the present study is to determine the prevalence of hypertension among adults more than 30 years in rural field practice area of mmc. We also aim at finding major Risk factors of hypertension in these individuals. Sedentary life style, obesity, increased oily food consumption, increased salt intake, family history are the major risk factors.

Prevalence of hypertension: (REF)

Chihchiang et.al at singapore in 2015 conducted a cross sectional community based study on hypertension among adults more than 30 years found to have prevalence of 53.8 %. Bharucha and kuruvilla et.al at bombay in 2003 conducted a cross sectional community based study on hypertension among adults more than 30 years found to have prevalence 36.4 % . Gupta et.al at thiruvananthapuram in 2001 conducted a cross sectional community based study on hypertension among adults more than 30 years found to have prevalence 36 %. **In view of the above said high prevalences among various study population, we have decided to conduct a hospital based study in our setting.**

Aims and Objectives

1. To estimate the prevalence of hypertension among the adults more than 30 years at rural field practice area of Malabar Medical College, Meppayur Rural Health Training Centre
1. To assess burden of predisposing risk factors among the study population
2. To create awareness on lifestyle changes, dietary changes to alleviate the complications of hypertension

MATERIALS AND METHODS

- Study design :cross sectional study
- Study setting : Hospital based study on patients visited during a period of 2
- Months(16/8/2016 - 15/10/2016) at Meppayur Rural Health Training Centre PHC
- Study period : I/l0/2016 to 15/10/2016
- Study population : people above 30 years

Sample size calculation

$n = 4pq/d^2$

Different sample sizes can be calculated based on different prevalence level of different risk Factors. Here the sample size was arrived with the prevalence of hypertension among adults Is 53.8% **(1)**

P=53.8%
d =allowable error = 10% of prevalence is allowed to calculate the value of 'd '
d = 10% of 53.8% = 5.38%
d2=(5.38)^2
d2= 28.99% rounded to 29
n: Za2 * PQ/d2
n=(1.96) * 53.8.46*2/29 = 329
Sample size = 329

Materials used
- Protested Questionnaire
- Sphygmomanometer
- Portable weighing machine
- Stadiometer
- Measuring tape

Data Collection:
The present study was carried out after getting ethical clearance from the institution and was conducted among adults more than 30 years visiting Meppayur Rural Health Training Centre PHC. Consent from the medical officer of PHC will be obtained. First patients were informed about the study and written consent were obtained. They were served with the pre tested questionnaire.

The following measurements taken
- Bp monitoring
- Weight
- Height
- BMI
- Hip circumference
- Waist circumference
- Waist-hip ratio

All the above measurements were assessed using standardized procedure and the instruments.

DATA ANALYSIS
The data will be entered in Microsoft excel 10 and will be analysed using statistical package for social science s (SPSS)VERSION 16.0

RESULTS
SOCIODEMOGRAPHIC CHARACTERISTICS
I. **AGE**: Mean (SD) age of study population is 57.5 (+/-2.11) with minimum age of 31 and maximum age of 84

2. GENDER: Majority of the study population were females (57%) and males were 43%

3. OCCUPATION OF STUDY SUBJECTS: Majority of the study population are unemployed (48%), 36% are manual labourers and 13% are doing other jobs

4. FAMILY HISTORY OF HYPERTENSION: According to the study population about 15% of study subjects have history of hypertension

5. HISTORY OF ANY SYS'TEMIC ILLNESS
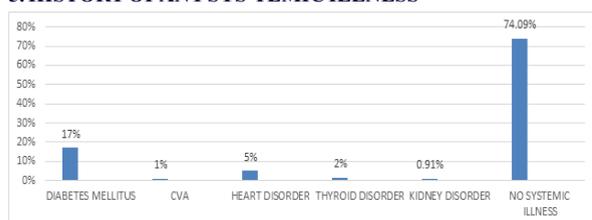
17% have diabetes mellitus, 5% have heart disorder, 1.5% have thyroid disorder, 1% have CVA and 0.91% have kidney disorder
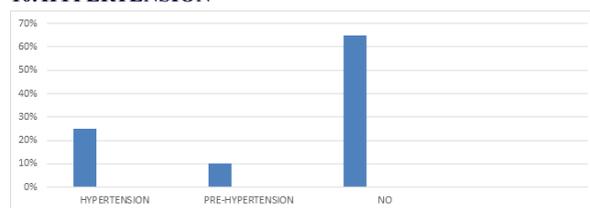
6. CHOLESTROL: According to the study population, 12% of study subjects have hypercholesterolemia

7. SMOKING: Prevalence of smoking among study subjects found to be 7%.

8. ALCOHOL : Prevalence of alcohol consumption among study subjects found to be 9%

9. TOBACCO CHEWING: Prevalence of tobacco chewing among study subjects found to be 18%

10. HYPERTENSION

Prevalence of hypertension among study subjects found to be 25% and prevalence of pre- Hypertension found to be l0%.

11. DIET
A. SALT RICH FOODS
Majority of the study subjects (79%) have 1-2 servings of salt rich food
- l0.6% of study subjects have 3-5 servings/week.
- 2.7% of study subjects have 7 servings/week.
- 6.3% of study subjects have O servings/week. .

B. FRUITS
Majority of the study subjects (47%) have 3-5 Servings of fruits/week
- 45% of study subjects have 1-2 servings/week.
- 5.1% of study subjects have 7 servings/week.
- 3.6% of study subjects have 0 servings/week,

C) VEGETABLES
Majority of the study subjects (63%) have 7 servings of vegetable
- 30% of study subjects have 3-5 servings/week.
- 7.2% of study subjects have 1-2 servings/week.

D) CEREALS AND PULSES
Majority of the study subjects (70.8%) have 7 servings of cereals and pulses/week.
- 27.6% of study subjects have 3-5 servings/week.
- 1.8% of study subjects have 1-2 servings/week.

E) DEEP FRIED ITEMS
Majority of the study subjects have 1-2 servings of deep fried items/week.
- 14.8% of study subjects have 3-5 servings/week.
- 11.2% of study subjects have 7 servings/week.
- 9.7% of study subjects have O servings/week.

F) JUICES/ BOTTLED DRINKS
Majority of the study subjects (69%) have O servings of juices/ bottled drinks/week.
- 27.3% of study subjects have 1-2 servings/week.
- 2.4% of study subjects have 7 servings/week.
- 1.2% of study subjects have 3-5 servings/week.

G) FAST FOOD
Majority of the study subjects have O servings of fast food/week.
- 4.2% of study subjects have 1-2 servings/week.
- 0.6% of study subjects have 3-5 servings/week.
- O% of study subjects have 7 servings/week.

12) LEISURE TIME ACTIVITY: Leisure time activities or past 3 months among study subjects were 'assessed and data is given below:Mean time spend for sedentary activities was 43.8 hours and the time spend for physical activity was 4 hours/week

13) HEIGHT: The mean (SD) height of the study population is 160cm(+/-7) with minimum height of 140cm and maximum height of 180cm

14) WEIGHT: The mean (SD) weight of the study population is 59cm(+/-11.49) with minimum weight of 38kg and maximum weight of 80kg

15) BMI: The mean (SD) BMI of the study population is 23.8Skg/m2(+/-3.73) with minimum BMI of 18kg/mz and maximum BMI of 29.7kg/mz

16) WAIST CIRCUMFERENCE: The mean (SD) waist

circumference of the study population is 90.5cm(+/-11.24) with minimum 72cm and maximum 109cm

17) HIP CIRCUMFERENCE: The mean (SD) hip circumference ofthe study population is 91.5cm(+/-10.8) with minimum 77cm and maximum 106cm

18) WAIST-HIP RATIO: The mean (SD) waist-hip ratio of the study population is .96(+/-0.08) with minimum .86 and maximum .96.

DISCUSSION

Hypertension, also known as high or raised blood pressure, is a global public health issue. Globally cardiovascular disease accounts for approximately 17 million deaths a year, nearly one third of the total **(2).** Of these, complications of hypertension account for 9.4 million deaths worldwide every year **(3).** Hypertension is responsible for at least 45% of deaths due to heart disease (total ischemic heart disease mortality), and 51% of deaths due to stroke (total stroke mortality). (1)Over three quarters of CVD deaths take place in low- and middle-income countries.In India, About 33% urban and 25% rural Indians are hypertensive. Of these, 25% rural and 42% urban Indians are aware of their hypertensive status. Only 25% rural and 38% of urban Indians are being treated for hypertension. One-tenth of rural and one-fifth of urban Indian hypertensive population have their BP under control.The regional variations in mortality and prevalence of CHD and stroke in India (south India has higher CHD mortality and eastern India has higher stroke rates [4]). Our study was done in Kerala which falls in the Eastern part of South India. So, We aimed to perform a prevalence of HTN among People more than 30 years. Our study was conducted in a Rural Area in Calicut district. Since Most of the people in this age group were females (57%).And among the male Participants more than half of the male participants admitted that they were using Tobacco products on daily basis, despite of the anti-tobacco measures taken in the last decade in our country. Only 65 % of the study participants were within Normal Blood pressure range. The rest 35 % who were having high Blood pressure were found to be unemployed physically inactive females.The result of the study indicates that the focus should be on educating the rural population about the complications of hypertension were more similar to other reports. For example, Haghdoost et al. estimated the national prevalence of hypertension in Iran to be 22.1% among adults and 49.5% among individuals older than 55 year old [5]. Likewise, Esteghamati et al. reported the overall prevalence of hypertension to be 25.2% in adults and 53.6% in the 55–64 year age group in an Iranian national household survey of risk factors for noncommunicable diseases [6]. The risk factors like increased Salt intake, Stress, Obesity, Tobacco which lead to Hypertension in the long run should be addressed.The importance of Fresh fruits and vegetables, which is always found to be free of high salt content, should be emphasised in daily diet. Periodic screening for Hypertension should be initiated in the early ages of life. The importance of forming a Health group in the every rural area, may help in constantly motivating the people in the community to follow Healthy life style and make them being physically active all-round the year. At Household level, Healthy alternatives for meal preparation should be encouraged. The diet should be containing less amounts of salt, oil and Simple sugars, in each meal should be focussed.Since Decentralisation of the Health services, is the only way forward. Individuals of the community who are at risk should be educated on how frequently they should be monitoring the Health status, to prevent and control Hypertension.

REFERENCES:
1.   Raja Ram Dhungana, Achyut Raj Pandey, Bihungum Bista, Suira Joshi, and Surya Devkota, "Prevalence and Associated Factors of Hypertension: A Community-Based Cross-Sectional Study in Municipalities of Kathmandu, Nepal," International Journal of Hypertension, vol. 2016, Article ID 1656938, 10 pages, 2016. https://doi.org/10.1155/2016/1656938.
2.   Causes of Death 2008 [online database]. Geneva, World Health Organization (http ://www.who.int/healthinfo/global_burden_disease/cod_2008_sources_methods. pdf.)
3.   Lim SS, Vos T, Flaxman AD, Danaei G, et al A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010 : a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012; 380 (9859): 2224-60
4.   Gupta R, Guptha S, Sharma KK, Gupta A, Deedwania P. Regional variations in cardiovascular risk factors in India: India Heart Watch. World J Cardiol 2012; 4:112–120 [PMC free article] [PubMed]
5.   Haghdoost AA, Sadeghirad B, Rezazadehkermani M. Epidemiology and heterogeneity of hypertension in Iran: a systematic review. Arch Iran Med. 2008 Jul;11(4):444–52
6.   Esteghamati A, Abbasi M, Alikhani S, Gouya MM, Delavari A, Shishehbor MH, et al. Prevalence, awareness, treatment, and risk factors associated with hypertension in the Iranian population: the national survey of risk factors for noncommunicable diseases of Iran. Am J Hypertens. 2008 Jun;21(6):620–6.