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Research Article

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Health status of hypertensive subjects, district. Karnal, Haryana

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Abstract

Health is defined as the state of wellbeing and free from illness but over half of the world population is suffering from hypertension which is a major public health challenge to societies in socio-economic and epidemiological transition. The normal range of blood pressure as measured by the mercuric Sphygmomanometer is from 110/60 to 120/80 mmHg. A blood pressure persistently above 140/90 mm Hg of hypertension is termed as a hypertensive condition. This study was conducted to estimate awareness and its management among males and females of Karnal district by assessing their health status, dietary intake, and associated factors related to it. Data collection was done using a self-prepared structured questionnaire on 200 willing hypertensive subjects that were selected through purposive sampling method from the profile study. An equal number of males and females from the age group 31-60 years were selected for this study.

The study revealed that the mean age of hypertensive subjects was 41-50 years. The majority of respondents were overweight due to poor lifestyle (lack or no physical activity) and dietary habits. It was observed that a higher percentage of hypertensive respondents were in the habit of using iodized salt. Also, the intake of water was less as per-day requirement i.e. 1.90 ± 0.78 liters' males and 1.60 ± 0.49 liters females.

Common foods restricte6d by hypertensive subject's sweets, mutton, ghee, oil, bakery food, and pickles. The majority of respondents had disturbed sleep, job and health related stress which led to a rise in blood pressure.

In conclusion, hypertension can be managed by structuring some therapeutic approaches like practicing yoga, walk, gym, jogging, meditation, anti-hypertensive medication, and many more. In the present study, more males were found to be practicing yoga as compared to females.

Keywords: Hypertensive, Blood Pressure, Health, Management, and Practicing

Introduction

Both in the advanced countries and in the metropolitan cities of India, with the changing lifestyle and the normal tradition patterns of food become inappropriate. Speedy urbanization, change in lifestyle patterns, stress and strains, improper eating habits, a faster pace of life, less physical activities, etc. are creating conditions that affect the health of people leading to chronic disorders. In these circumstances, Hypertension has become a major public health problem in many developing countries including India, more in urban than in rural population afflicting about 50 million Indians, mainly the middle aged and elderly of both sexes.

According to WHO (2013), hypertension was defined as a systolic BP equal to or above 140 mmHg and/or diastolic BP equal to or above 90 mmHg. Hypertension is generally divided into two main categories.

Primary (essential) Hypertension

Primary hypertension is the most prevalent type, affecting between 90-95 percent of patients diagnosed with hypertension. Primary hypertension does not have an identifiable etiology. This differentiates primary from secondary hypertension, in which blood pressure elevation occurs secondarily to another identifiable cause.

Secondary Hypertension

The remaining 5-10 percent of hypertension cases is classified as secondary hypertension. Secondary hypertension results from the identifiable cause. The cause may be a specific patho physiology or condition that results in hypertension, or the development of high BP may be the result of the ingestion of certain drugs, food

or chemical.

The responsible factors for increased blood pressure are obesity, excess salt and fat intake, lack of physical activity, smoking, emotional stress, high sodium and low potassium intake, modernization and others. Beside, calcium and dietary fiber also play a role in regulation of blood pressure. The amount of salt in the diet has been reported to have a direct relation with hypertension [2].

Dietary fiber lowers plasma cholesterol level through increased excretion of bile acids and neutral sterols. Vitamins and antioxidants help to strengthen and protect the inner lining of blood vessels by neutralizing free radicals and prevent further progression of disorder. Potassium rich fruits and vegetables help in regulating BP by excreting excess sodium from the body. Vitamin E present in nuts offers protection against hardening of arteries and also increases HDL-C level. DASH (Dietary Approaches to Stop Hypertension) combination diet was shown to significantly lower the blood pressure among hypertensive without sodium reduction or weight loss.

Prevalence in The Globe

Hypertension is becoming a public health emergency worldwide, especially in developing countries, where studies projected an increase by eighty percent in the number of hypertensiv's by the year 2025 (Kearney et al., 2005). The hypertension related stroke rate is high in Africa and victims are relatively young. Prevalence of hypertension was found to be 37.7 per cent in Italy, 38.4 percent in Sweden, 41.7 percent in England, 48.7 percent Finland, 46.8 percent in Spain and 56.3 percent in Germany. It is higher in Europe approximately 44% compared to the US approximately 28.1% (Wolf-Maier et al., 2003). WHO (2013) stated that in Worldwide, high blood pressure is estimated to affect more than one in three adults aged 25 and over, or about one billion people. The theme of the World Health Day 2013 is "Measure your Blood pressure, reduce your risk" for calling for intensified efforts to prevent and control hypertension.

There is epidemiology evidence that population demographic changes in India have increased hypertension risk factors. There is increasing life expectancy, urbanization, development and affluence in India. In 1901, only 11 per cent of population was living in an urban area; this proportion was 17.6 percent in 1951 which increased to 26.1 percent in 1991. There is a strong correlation between urbanization and increase in hypertension prevalence [3]. According to the 2001census, there are 600 million adults in India, of which 420 million are in rural and 180 million in urban areas and the absolute number of hypertensive' s in India shall be 31.5 million rural and 34 million urban subjects, a total of 65.5 million. An Indian epidemiology study reported that 70 percent of the Etiological Classification Robbins and Cotrans (2004) classified hypertension into two classes.

Essential or primary hypertension-when the cause an increase in BP is unknown then it is called essential hypertension. It constitutes about 90 to 95 percent of people.

Secondary hypertension- when the cause for the rise in BP is known, it is called secondary hypertension. It is seen in 5 to 10 percent of people. Causes for secondary hypertension may be: -

a) Renal abnormalities: Acute glomerulonephritis, chronic renal disease, or renal artery stenosis.
b) Endocrine gland abnormalities: Adrenocortical hyper function, hyperthyroidism, or hypothyroidism, pheochromocytoma.
c) Cardiovascular problem: Narrowing of arteries, coarctation of the aorta, or increased cardiac output.
d) Pregnancy induced: Pre-eclampsia, or eclampsia.
e) Neurologic: Sleep apnea, acute stress, or increased intracranial pressure.

Risk Factors

World Health Organization scientific group has reviewed risk factors for hypertension. They may be classified into non-modifiable and modifiable risk factors.

Non-Modifiable Risk Factors

Age: Aging causes the arteries to become less elastic with time thus increasing BP. concluded that the proportion of hypertension steadily increased with age, being highest in the 50-59 years' group (44.3%).

Genetic Factors: Based on twin and family studies. BP levels appear to be genetically determined with polygenic inheritance. The children of two normotensives patients have a 3% possibility of developing hypertension whereas this possibility was 45% in children of two hypertensive parents [6]. Genetic factors are thought to play a prominent role in the development of essential hypertension.

Race: Blacks are more prone than whites to hypertension. BP was higher in blacks (32.4%) and lower in whites (23.3%) and Mexican American (22.6%) [4]. The prevalence of hypertension among American Indians is slightly higher than that of general population; while among Hispanics the prevalence is slightly lower a sin African American is highest in the World.

Gender: Men are at higher risk of developing hypertension. Usually, women encounter hypertension after menopause, between 40-45 years of age. The risk of hypertension is greater in men than women, although this difference declines with increasing age.

Diabetes: Hypertension occurs twice as frequently in diabetics than in non-diabetics. Diabetes and hypertension are closely related diseases. People with both diabetes and hypertension have approximately twice the risk of cardiovascular disease than non-diabetic people with hypertension. Hypertension is an extremely common co-morbid in diabetes, affecting 20-60 % of patients with diabetes.

Modifiable Risk Factors

Overweight and Obesity

Obesity and especially abdominal obesity is the main hypertensiogenic factor. It was estimated that each 10 % weight gain is associated with a 5-6 mm Hg increase in SBP. There is a direct association between hypertension and Body Mass Index (BMI).

Salt intake

There is an increasing body of evidence that high salt intake (7-8 g/day) increases BP proportionately, while low sodium intake has been found to lower the BP. Factors contributing to the increase in

salt intake include larger portion sizes of foods, changes in snacking habits, and an increase in the percentage of the population eating away from home, particularly at fast food restaurants.

Alcohol

Alcohol can induce hypertension and its incidence is higher in people who consume more than three drinks (1.5 ounces) per day as compared to those who consume less than three drinks per day. The prevalence of alcohol associated hypertension is about one per cent in the general population and seven percent in men. Moderate alcohol consumption of two drinks a day or less offered protection for coronary heart disease but higher intake leads to hypertension and proved toxic to the heart, leading to stoke and other problems.

Smoking

Smoking constricts the blood vessels and leads to a rise of BP. It also affects the lipid level, increases central obesity which may be involved in worsening of insulin resistance. Cigarette smoking causes sympathetic activation, oxidative stress and acute vasopressor effects that are associated with increase in markers of inflammation that are linked with hypertension.

Caffeine

Evidence suggests that caffeine contained in two cups of coffee may raise the BP by 5 mm Hg in infrequent users of caffeine. The BP does not rise in habitual users indicating a phenomenon of tolerance in them.

Physical activity

The incidence of hypertension is low in people who maintain a high degree of physical activity. The risk of developing hypertension was 35% greater in persons who did not engage in vigorous physical exercise than the others.

Faulty Dietary habit

A faulty diet plays a major role in causing hypertension. Incidence of hypertension was seen in people whose diet was rich in fat, calorie, and dietary salt.

Complications

Hypertension is a degenerative disorder and can affect every part of the body, organ, and tissues. Patients with hypertension are at increased risk of morbidity and mortality. Hypertension is an independent risk factor for cardiovascular and cerebrovascular disease. BP is an any increase above optimal confers additional independent risk of coronary heart disease, stroke, congestive heart failure, end-stage renal disease and peripheral vascular disease reported that high blood pressure ranks as the main cause of stroke because it weakens arteries in the brain, paving the way for a rupture or blood clot. It also contributes to coronary atherosclerosis (the buildup of fatty deposits in the arteries that nourish the heart) which increases the risk of a heart attack. It damages tiny vessels in the kidney that are needed for filtering the blood, which 15 can lead to kidney failure. Hypertension can cause blindness by damaging vessels that provide blood to the retina of the eye.

Management Hypertension

Hypertension cannot be cured completely but therapies instituted can help to achieve satisfactory control. The main method of control of hypertension consists of diet, exercise, drugs, and education. The responsible factors for increased blood pressure are obesity, excess salt and fat intake, physical activity, smoking, emotional stress, high sodium and low potassium intake, modernization and others [1].

Methodology

Research is not only collection of data which gathers from the research but it also clears the meanings and importance of everything. Besides, describing it often compares on contrast the existing evidence thereby involving measurement, classification, interpretation, and evaluation. The present study was carried out among the 200 hypertensive patients in District Karnal, Haryana, India, during the period from October 2019 to December 2019. Study subjects included hypertensive patients in the age group of 31-60 years.

The questions in the questionnaire were kept simple and unambiguous. The questions were explained to patients in the local language (Hindi) and also proper dietary guidance was given to patients on hypertension. The developed questionnaire was pre-tested and modified suitably.

Result

People will experience high blood pressure during their lifetime. Hypertension is a condition in which the blood pressure is consistently higher than normal. Hypertension cannot be cured but managed. Education alone may be sufficient to improve patient outcome, but it forms the framework on which diet, lifestyle modification and medication and medications are built. A total of 200 willing hypertensive subjects (100 males + 100 females) were selected through purposive sampling method from the profile study. Age group 31-60 years and 100 males and 100 females are selected to study. The main purpose of this chapter is to focus on findings pertinent to the present study and their related discussions. In this chapter, the data collected during the investigation has been analyzed and discussed under the following sub-heads.

Distribution Based On Qualification

EDUCATIONAL STATUS	Gender		Total
	Male	Female	
Illiterate	37	27	64
	37.0%	27.0%	32.0%
Elementary	22	24	46
	22.0%	24.0%	23.0%
High School	30	31	61
	30.0%	31.0%	30.5%
College	11	18	29
	11.0%	18.0%	14.5%
TOTAL	100	100	200
	100.0%	100.0%	100.0%

Above table summarizes the distribution of subjects based on education status. It is evident that 37 percent males while 27 percent females were illiterate. In other aspects, 22 percent of males and 24 percent of females had elementary education. However, 30 per-

cent of males and 31 percent of females were gone high school. Surprisingly, only 11 percent of males and 18 percent of females were gone college.

Distribution Based On Body Mass Index

BODY MASS INDEX (kg/m²)	Gender		Total
	Male	Female	
Under weight (<18.5)	7	5	12
	7.0%	5.0%	6.0%
Healthy (18.5-24.9)	23	23	46
	23.0%	23.0%	23.0%
Over weight (25.0-29.9)	38	45	83
	38.0%	45.0%	41.5%
Obese (>30.0)	32	27	59
	32.0%	27.0%	29.5%
TOTAL	100	100	200
	100.0%	100.0%	100.0%

The distribution of respondents based on their body mass index (BMI) is presented that Irrespective of gender highest percentage of hypertensive' s (41.5%) was belonging to over-weight category and 29.5 percentages of respondents were belonging to obese category.

Distribution Based On Daily Intake of Water

According to the above table depicts the mean intake of water per day. Both male and female respondents drink less water as per day requirement i.e. 1.90 ± 0.78 liters and 1.60 ± 0.49liters, respectively.

GENDER	N	Mean	Std. Deviation
Male	100	4.75	1.91
Female	100	5.08	2.48

DISTRIBUTION BASED ON DIFFERENT TYPES OF SALT USED:

TYPE OF SALT	Gender		Total
	Male	Female	
Iodized	51	42	93
	51.0%	42.0%	46.5%
Rock	42	50	92
	42.0%	50.0%	46.0%
Black	7	8	15
	7.0%	8.0%	7.5%
TOTAL	100	100	200
	100.0%	100.0%	100.0%

Observation of the. indicates that the majority of respondents (76%) were used iodized salt this may be due to low cost and lack of awareness regarding bad effects of iodized salt on health. Iodized salt seems to increase BP.

Distribution Based on Food Restriction Food Restriction

The information pertaining to the foods restricted or not by the hypertensive respondents is presented as follows. Nearly half of the subjects followed food restriction in the diet (53.0%) common foods restricted by hypertensive subjects were sweets, sugar, fruits like banana, apple (they raise the sugar level). Few subjects restricted intake of ghee and oil (they increases body weight). Few subjects avoided fried food, bakery food, papadas, pickles, and salted snacks (these foods contained more salt).

FOOD RESTRICTED	Gender		Total
	Male	Female	
Yes	59	43	102
	59.0%	43.0%	51.0%
No	41	57	98
	41.0%	57.0%	49.0%
TOTAL	100	100	200
	100.0%	100.0%	100.0%

Discussion

Dietary pattern and lifestyle factors of hypertensive subjects

Hypertension is generally the result of complex hereditary and environmental factors, genetic susceptibility accounting for much of the variation within populations. Urbanization involves changes in occupation patterns, lifestyles, family structure and value systems. These changes are reflected by changes in dietary practices and level of physical activity. The changes in dietary practices, physical activity level and lifestyle contribute in the prevalence of hypertension. In our, study two hundred hypertensive (100 males and 100 females) were selected for assessing the knowledge, lifestyle and frequency of food consumption. The majority of subjects were not in the habit of using rock salt. This may be due to the high cost and lack of awareness regarding the bad effects of iodized salt on health. Iodized salt seems to increase BP. In the present study half of subjects were aware of restricting certain foods for the control of hypertension. When hypertensive were classified according to the complications it was seen that most of the subjects with diabetes were aware of restricting foods like sweets and sweet fruits and majority were unaware about restricting foods rich in sodium like pickles, papads, chutneys, fried foods, bakery products and salted snacks and salt. Foods rich in cholesterol like mutton, egg yolk and ghee were restricted by few subjects. Therefore, there is a need for educating hypertensive for control of hypertension. Similarly, in a study conducted by majority of non-vegetarians were unaware of cholesterol and trans fat present in egg yolk and mutton. Low intake of green leafy vegetables, fruits and other vegetables in the form of raw salads was observed. These foods are good sources of dietary fiber, carotene, riboflavin, niacin, ascorbic acid and potassium and so intake of these foods would help to control hypertension. Consumption of milk and milk products is inversely related to the risk of hypertension. The milk proteins are degraded to pep-

tides that have antihypertensive effects [5]. In the present study, the majority of subject consumed tea, which is also a form of milk. Milk loses its protein activity when it is taken in the form of tea. Most of the subjects used whole milk for curd preparation. There is a need for education regarding role of skimmed milk. Majority of subjects consumed curds daily. There is a good practice since curd is rich in calcium, phosphorus, magnesium, protein and probiotics. Curds help to control hypertension, improve immunity, prevents the formation of ulcers, improves digestion, protect against cancer such as colon and good for the health of the bones Exercise plays an integral part in the management of hypertension. In general modernization and mechanization had led to sedentary habits. It is seen that more than half of the subjects both male and female in the present study exercised occasionally in a form of normal walk, jogging and aerobics. Ramsay has suggested walking for about 30-45 minutes per day as the most appropriate and safe exercise for most patients [2-8].

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