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RESEARCH ARTICLE

Study on Epidemiology of Hypertension in a Tertiary Care Hospital

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ABSTRACT

An epidemiological study of hypertension (HTN) was carried out in a tertiary care hospital located in Dehradun, Uttarakhand, India. Several parameters such as gender, age, education, economic status, comorbid state, smoking habit of person, body mass index (BMI), physical activity, family history of HTN, salt intake, habit of drinking alcohol, physical activity of patients, waist-hip ratio, and medication usage in HTN were considered to assess the epidemiology of HTN. Results revealed that the prevalence of HTN was more in male than female patients with highest incidence in the age group of 40–60 years of age. Certain health risk factors such as urban areas, lower educational qualification, and higher BMI also affected significantly HTN. In addition, smoking habits, drinking habits, physical activity, comorbid state, and waist-hip ratio also influenced greatly the HTN in the studied population.

Keywords: Hypertension, epidemiology, risk factors, tertiary care, lifestyle

INTRODUCTION

Epidemiology is the study and analysis of the patterns, causes and effects of health, and disease conditions in defined populations.[1-3] It is the cornerstone of public health, and shapes policy decisions and evidence-based practice by identifying risk factors for disease, and targets for preventive health care. Epidemiologists help with study design, collection, and statistical analysis of data, and interpretation and dissemination of results. Epidemiology has helped develop methodology used in clinical research, public health studies, and to a lesser extent, basic research in the biological sciences.[4-6] Epidemiological studies can be divided into two basic types. One is retrospective, whether the events have already happened, and the other one is prospective, whether the events may happen in the future.

Hypertension (HTN or HT), also known as high blood pressure (BP), is a long-term medical condition in which the BP in the arteries is persistently elevated. BP is expressed by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively. Normal BP at rest is within the range of 100–140 mm (mmHg) systolic and 60–90 mmHg diastolic. High BP is present if the resting BP is persistently at or above 140/90 mmHg for most adults. High BP usually does not cause symptoms.[7-10] High BP is classified as either primary (essential) high BP or secondary high BP. Long-term high BP, however, is a major risk factor for coronary artery disease, stroke, heart failure, peripheral vascular disease, vision loss, and chronic kidney disease.[9-18]

In the present work, an epidemiological study of HTN was carried out in a tertiary care hospital located in Dehradun, Uttarakhand, India.

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MATERIALS AND METHODS

Study Design

The present study was carried out at Shri Mahant Indiresh Hospital, Dehradun, Uttarakhand (India). The study was designed on the hypertensive patients who were on treatment at the hospital. The patients were selected randomly. Patients were chosen from both sexes of various age groups. The patients were asked on the basis of which a questionnaire was filled. From the data, generated questionnaire was analyzed and the assessment was made.

Sample Size

A total of 53 patients were chosen randomly and were included in the study. The duration of the study was about 2–3 months.

Data Collection

A pro forma was designed and used for the entry of specific information about patients. The format provided the following information: Patients name, address, occupation, sex, education, income, blood BP (mmHg), economic status, genetic history, comorbid state (if suffering from any other ailments), smoking habit of person, body mass index (BMI), family history of HTN, salt intake, habit of drinking alcohol, physical activity of patients, waist-hip ratio (waist and hip circumferences), and medication usage in HTN.[19-22]

RESULTS AND DISCUSSION

The prevalence of HTN was assessed in terms of various parameters as depicted below:

The male-to-female ratio of HTN was calculated. The number of male hypertensive patients was 27 (51%) and the number of female hypertensive patients was 26 (49%). Figure 1 clearly reveals that HTN is more prevalent in male than female.

Figure 2 indicates that the incidence of HTN is more (60%) in people between 40 and 60 years of age. Younger (20%) and older (19%) individuals are less susceptible to HTN.

HTN is common in urban areas than in rural areas [Figure 3]. It might be due to the sedentary lifestyle of people from urban areas.

Patients with higher education (higher than 12th class) were less prevalent, whereas, patients between 10th to 12th classes were more prevalent. Illiterate people and individuals with <10th class were very less prevalent. From results [Figure 4], it is inferred that patients with higher educational

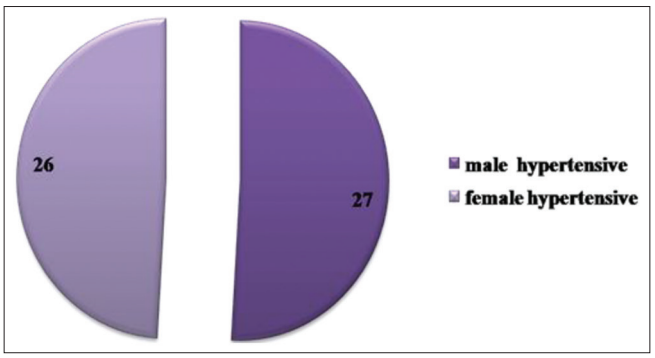

Figure 1: Male-to-female ratio of hypertension

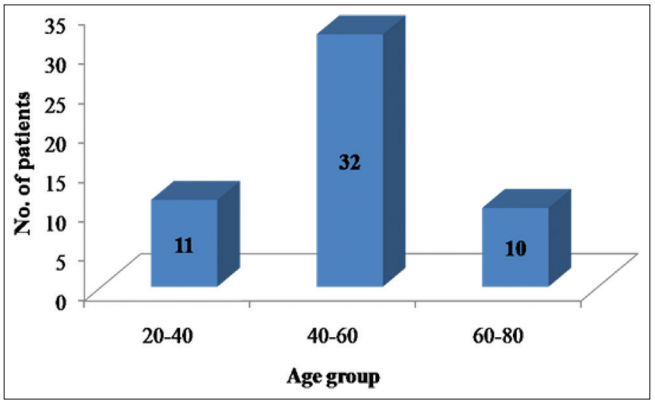

Figure 2: Prevalence of hypertension according to age group

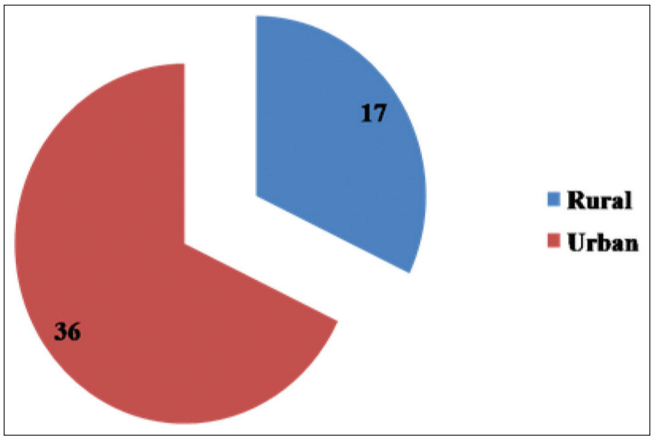

Figure 3: Prevalence of hypertension in rural and urban areas

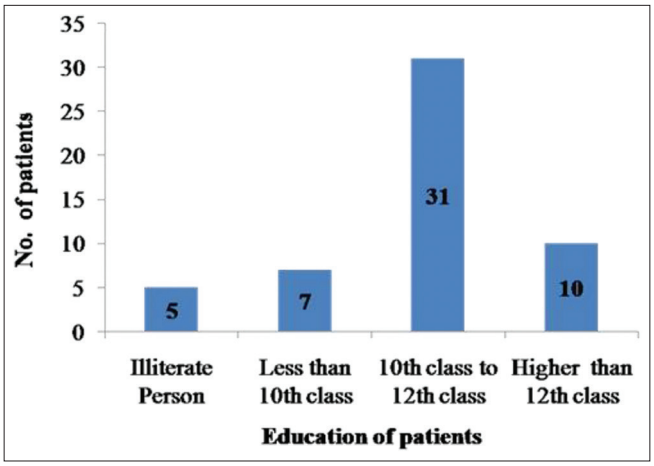

Figure 4: Prevalence of hypertension according to educational qualification

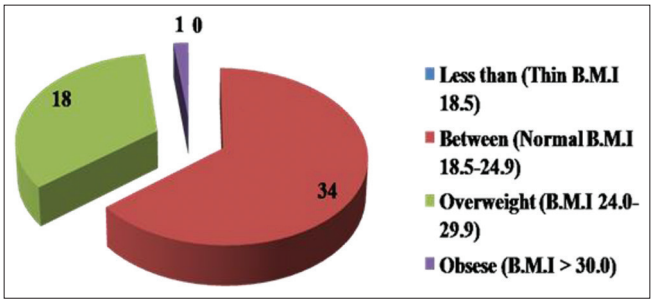

Figure 5: Hypertension according to body mass index

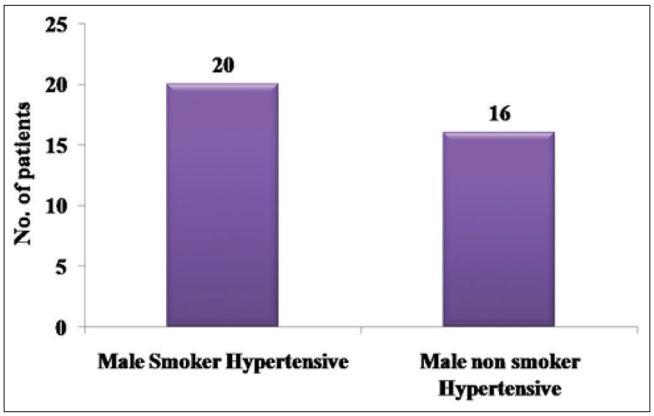

Figure 6: Prevalence of hypertension among male and female smoker and non-smoker subjects

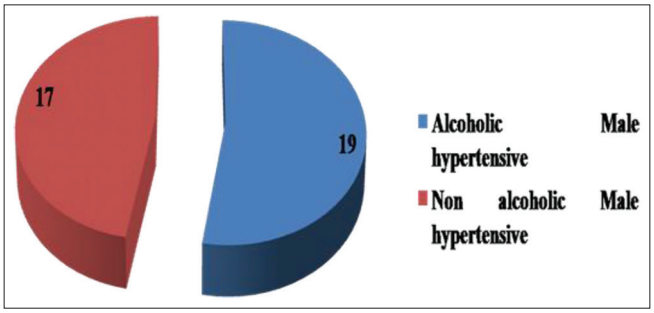

Figure 7: Prevalence of hypertension among alcoholic and non-alcoholic subjects

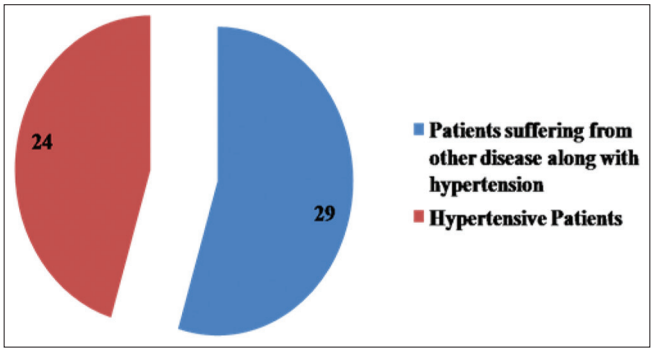

Figure 8: Hypertensive patients suffering from any other ailments

qualification are aware of the diseases, and therefore, they are less prone to the disease.

BMI also plays a role in the prevalence of HTN. Most of the patients were normal/overweight, that is, BMI with 18.5–24.9/24.0–29.9. More the BMI, higher the chances of HTN [Figure 5].

About 40% of the hypertensive patients were smokers. As most of the smokers were male, total males were 27, out of which 20 were smokers. Smoking has a role in the prevalence of HTN. Smoking temporarily raises BP and increases risk of damaged arteries [Figure 6].

Out of 37 males, 17 were found to be alcoholic (63%) which is significant [Figure 7]. Consumption of alcohol increases the risk of HTN. It may further lead to heart failure, lead to stroke, and produce irregular heartbeats.

A total number of patients suffering from other diseases were found to be 29 out of 53, that is, 55% which is significant indicating that HTN is more common in other ailments [Figure 8].

Sedentary lifestyle with no physical work was found to be major risk factor in the development of HTN. Out of 53 patients, 24 patients (45%) [Figure 9] were having sedentary lifestyle which is significant indicating that sedentary lifestyle plays a dominant role in the prevalence of HTN. Physical inactivity contributes to other risk factors such as increase in BP, blood cholesterol levels, overweight, and obesity.

Out of 53 patients, 50 (94%) were found to be normal, while abnormal patients were, that is, 3 (6%) patients. It is attributed that BMI and waist-hip ratio are the major indicators for HTN [Figure 10].

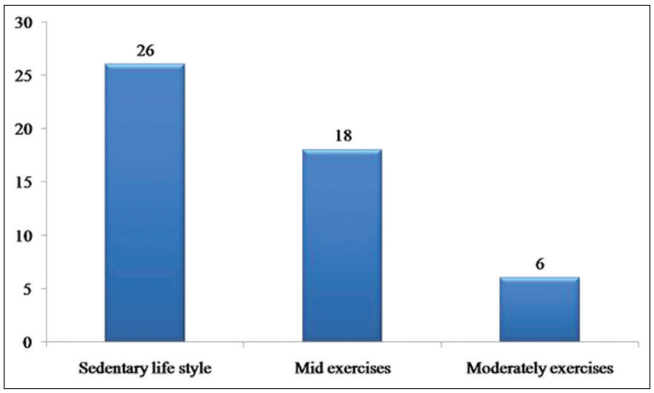

Figure 9: Hypertensive patients with respect to physical activity

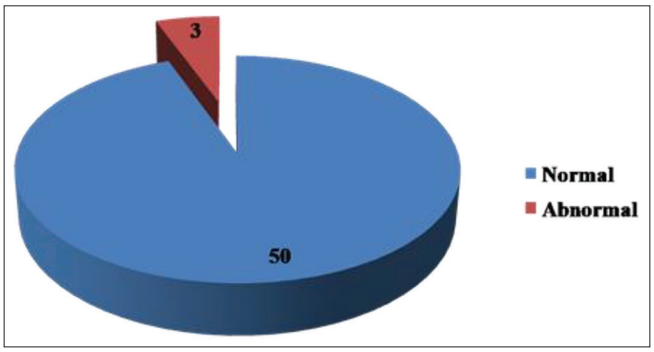

Figure 10: Hypertensive patients with respect to waist-hip ratio

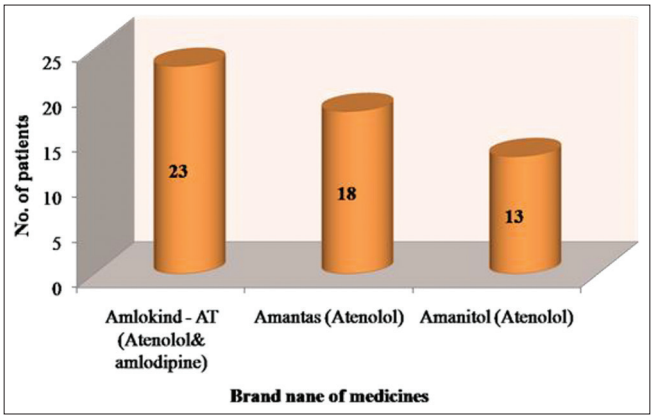

Figure 11: Hypertension among patients receiving medication

In HTN, most commonly used medicines are Amlokind – AT which contain atenolol and amlodipine. The number of hypertensive patients receiving Amlokind – AT is 23, that is, 42% of patients are hypertensive [Figure 11].

CONCLUSION

About 90–95% of cases are primary, defined as high BP due to non-specific lifestyle and genetic factors. Lifestyle factors that increase the risk include excess salt, excess body weight, smoking, and alcohol. Dietary and lifestyle changes can improve BP control and decrease the risk of associated health complications, although drug treatment is often necessary in people for whom lifestyle changes improve BP control and decrease the risk of associated health complications, although drug treatment is often necessary in people for whom lifestyle changes prove ineffective or insufficient.

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