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To assess the Causes of Hypertension in early age group - A cross sectional study between Male and Female

Ankit Saluja[1], Dr. Nandita Thakur[2]

DDUKK, DAVV, Indore (M.P.)

A B S T R A C T

Hypertension is a critical health concern with increasing prevalence among young adults worldwide. Understanding the causes of hypertension in the early age group is vital for developing effective prevention strategies and early interventions. This research aimed to examine the factors contributing to hypertension in males and females within this age group, exploring potential gender-specific differences and risk factors. The study included a total of 64 subjects, with 33 males and 31 females. The causes of hypertension among the study participants were assessed. In males, 33% had a BMI greater than 25, 61% were regular smokers, 42% were regular alcohol consumers, 70% had poor dietary habits, 39% had high stress levels, 42% were sleep deprived (sleeping less than 6 hours), 100% had high salt intake, 42% did not exercise and were less physically active, 52% had a family history of hypertension, and 15% had type 2 diabetes. Among the female participants, 45% had a BMI greater than 25, 16% were regular smokers, 10% were regular alcohol consumers, 71% had poor dietary habits, 54% had high stress levels, 61% were sleep deprived, 100% had high salt intake, 55% did not exercise and were less physically active, 48% had a family history of hypertension, and 32% had type 2 diabetes. It highlights the need for targeted interventions to reduce salt intake and promote healthier dietary habits among young adults, ultimately improving their cardiovascular health and well-being.

Keywords: Hypertension, sedentary, salt intake, sleep deprivation, eating pattern, lifestyle, obesity.

1. Introduction

Hypertension, also known as high blood pressure, is a medical condition in which the blood pressure in the arteries is consistently elevated above normal levels. Blood pressure is the force of blood pushing against the walls of the arteries as the heart pumps blood throughout the body. When this pressure is consistently high, it can cause damage to the blood vessels and increase the risk of serious health problems such as heart disease, stroke, and kidney failure. Hypertension is typically diagnosed when the systolic blood pressure (the top number) is consistently above 130 mm Hg, and/or the diastolic blood pressure (the bottom number) is consistently above 80 mm Hg. Hypertension is a common condition, affecting approximately 1 in 5 adults all over the world. It can be managed through lifestyle changes such as diet and exercise, as well as medication. It is important to regularly monitor blood pressure and seek medical attention if it is consistently high.

Hypertension is relatively uncommon in young adults, but it can occur in this age group as well. Risk factors for hypertension in young adults include obesity, a family history of hypertension, smoking, and high levels of stress. Sleeping habits have changed dramatically over the past half century. Increased artificial lighting, shift and night work, 24-hour access to services, and the recent ubiquity of electronic communication and entertainment technologies are believed to contribute to reduce sleep time. Young adults who have other medical conditions such as diabetes or kidney disease may also be at an increased risk of developing hypertension. Early detection and treatment of hypertension in young adults is important to prevent long-term complications such as heart disease and stroke. Lifestyle modifications such as regular exercise, maintaining a healthy weight, and reducing salt and alcohol consumption are recommended in combination of medicines in some cases.

1.1. Risk Factors

There are several factors that contribute to this increased risk. One of the main factors that contribute to the increased risk of hypertension in middle-aged adults is aging. With age, blood vessels become less elastic, and arteries may narrow, making it harder for blood to flow through them. This can cause an increase in blood pressure. Additionally, bodies may produce less of the hormone nitric oxide, which helps to relax and widen blood vessels, further contributing to increased blood pressure. Lifestyle factors also play a significant role in the development of hypertension in middle-aged adults. Middle-

aged adults may be more likely to engage in unhealthy behaviours such as smoking, consuming excess alcohol, eating a diet high in salt and fat, and being physically inactive. These lifestyle factors have been shown to increase blood pressure and contribute to the development of hypertension.

The corona virus disease 2019 (COVID-19) pandemic is expected to have adverse effects on the long-term incidence of cardiovascular diseases due to inadequate control of cardiovascular risk factors. In particular, there are concerns that hypertension control may decrease during the pandemic due to prolonged stress and unfavorable lifestyle habits, including increased alcohol and salt intake, weight gain and sedentary lifestyle.

1.2. Nutritional Requirement of Hypertensive Patients

The calorie intake should be tailored to the individual's specific needs, taking into account factors such as age, sex, weight, and physical activity level. The goal is to create a calorie deficit if weight loss is necessary or to maintain a healthy weight if no weight loss is required. The protein intake should be at a normal level, meeting the recommended dietary allowance (RDA) for protein based on age, sex, and weight. Good sources of lean protein include poultry, fish, legumes, low-fat dairy products, and tofu. The focus should be on consuming healthy fats and limiting saturated and trans fats. Choose monounsaturated fats found in sources such as avocados, olive oil, nuts, and seeds. Include omega-3 fatty acids found in fatty fish (like salmon and sardine), flaxseeds, and walnuts. Limit saturated fats from red meat, full-fat dairy products, and fried foods. Avoid trans fats found in processed and packaged foods. Emphasize complex carbohydrates from whole grains, fruits, vegetables, and legumes. Choose high-fiber options that help regulate blood sugar levels and promote satiety. Limit simple carbohydrates such as refined grains, sugary beverages, and sweets. Limit sodium intake to help control blood pressure. Aim for less than 2,300 milligrams (mg) of sodium per day, or even lower if advised by a healthcare professional. Avoid high-sodium processed foods, canned soups, fast food, and excessive use of table salt. Use herbs, spices, and other flavourings to enhance the taste of meals instead of relying on salt.

2. Methodology

The proposed research aimed to determine the nutritional status and causes of hypertensive patients among male and female aged 30-40 years. Reviewed literature was collected through primary & secondary data. Literature of review was collected from different research papers. After finalization research problem, objectives were constructed and a hypothesis was assumed regarding what is significant and what is insignificant. The run-in period for this study was four weeks. During this time, potential participants were assessed for eligibility and recruited from the local community. Those who met the inclusion criteria were invited to participate in the study.

After obtaining informed consent, each participant underwent a counselling session where they were provided with information about the study, its objectives, and the procedures involved. They were also educated about hypertension and the importance of maintaining a healthy lifestyle with the help of prepared brochure. Data collection took place during the run-in period. Participants were asked to complete a medical history questionnaire, which collected information on their age, gender, family history, and lifestyle factors such as 24 hour dietary recall, physical activity, and smoking & alcohol status. Blood pressure measurements were also taken.

3. Result & Discussion

3.1. Socio demographic profile

Demographic profile of participants was in the age group of between 30-40 years. In total 64 participants were included 33 males (51.6%) and 31 females (48.4%). Occupation of respondents is 32(50%) are doing job, 11(17.2%) are in business and 21(32.8%) are home maker. Religion of majority of respondents 57(89%) were Hindu, 4(6.3%) Muslim and 3(4.7%) Sikh. Family income p.a. of participants were 34(53.1%) bellow 5 lakh, 28(43.8%) between 5-1 lakh and 2(3.1%) above 15 lakh.

3.2. Anthropometric Measurement

Mean value of height in male was found 161.35 ± 11.88 where as in female was 160.69 ± 12.25. Regarding weight the mean value of weight in male was found 64.66 ± 13.67 where as in female was 64.17 ± 13.86. Regarding BMI the mean value of BMI in male was found 24.73 ± 4.5 and in female was found 24.78 ± 4.72.

3.3. Causes

Table 1 shows the analysis of causes of Hypertensive patients. Subjects having BMI >25 in male were 33% and female were 45%. Subjects who smoke on regular basis male were 61% and female were 16%. Subjects who drink alcohol on regular basis male were 42% and female were 10%. Subjects having poor dietary habit male were 70% and female were 71%. Subjects were high on stress levels male was 39% and female was 54%. Subjects who was sleep deprived (sleeps <6 hours) male were 42% and female were 61%. All the participants were high on salt intake where male were 100% and females were

100%. Subject who do not exercise and were less physically active male were 42% and female were 55%. Subject who were having family history of hypertension male were 52% and female were 48%. Subjects who were having type 2 diabetes male were 15% and female were 32%.

Table 1 - Percentage and frequency distribution of different causes of Hypertensive patients between Male & Female

Causes Found	**Male (n=33)**		**Female (n=31)**	
	Percentage	**Frequency**	**Percentage**	**Frequency**
Overweight	33	11	45	14
Smoking Habit	61	20	16	5
Consumes Alcohol	42	14	10	3
Poor Dietary Habit	70	23	71	22
High Stress Levels	39	13	54	17
Sleep Deprivation	42	14	61	19
High Salt Intake	100	33	100	31
Sadentary Lifestyle	42	14	55	17
Family History	52	17	48	15
Had Co-morbid Disease (Diabetes)	15	5	32	10

4. Conclusion

The data revealed that there were intriguing findings regarding the causes of hypertension in the early age group between males and females. Several key factors emerged from the analysis, highlighting potential gender-specific differences in the risk factors for hypertension. In males, the data indicated a significant correlation between hypertension and a family history of high blood pressure, and their drinking and smoking habit. Conversely, in females, the data pointed towards sleep deprivation, high stress levels and having type-2 diabetes, as potential contributors to hypertension. Additionally, dietary patterns, sedentary lifestyle and elevated body mass index (BMI) emerged as a common risk factor for both males and females, with high salt intake and poor eating habit is playing a significant role. These findings provide valuable insights into the complex interplay of various factors that contribute to hypertension in the early age group, emphasizing the need for tailored interventions and targeted preventive strategies based on gender-specific risk profiles.

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