



HYPERTENSION: EARLY DETECTION AND PREVENTION.

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Abstract: Hypertension is a problem. It occurs when your blood pressure is too high. Your systolic blood pressure should be above 140 mmHg and your diastrophic blood must be no less than 90 mHG. The International Society of Hypertension has stated that hypertension is a disease that affects more than 1.5 billion people globally, and it's detrimental to health. It can lead to heart-related complications such as heart disease and stroke.. It can even cause death. It is imperative to take action against high blood pressure. Why? The International Society of Hypertension held a meeting with experts to discuss the management of hypertension. According to their statement, the prevention and control of hypertension can be achieved by making lifestyle changes. These adjustments are necessary even if you're taking medication to check your blood pressure. The specialists scrutinized a considerable amount of research. Made some recommendations. The recommendation was to begin making these changes at a young age. It's worth trying to be a weight. You need to exercise as well. Eating healthy and drinking nutritious drinks are both important. You should not. Drink too much alcohol. Trying to manage your stress and get some rest is also important. The specialists also provided insights on some actions. Avoid consuming large quantities of sodium or sugar."". A diet that includes potassium and fibre is recommended. They also talked about the consumption of coffee and tea. There are individuals who may want to fast. These modifications can be made using a few tools. Technology has the potential to assist in your behaviour change. Helping with hypertension management. Managing high blood pressure is possible, but there are ways to do so. Controlling hypertension is possible with the right lifestyle changes.

Keywords: hypertension, blood pressure, early detection, prevention, cardiovascular disease, screening, lifestyle changes.

Introduction: The chronic elevation of arterial blood pressure is known as hypertension. In accordance with present guidelines, it is commonly defined as having a systolic blood pressure of 140 mmHg or higher and/or defining a diastrophic blood Pressure of 90 mmHG or more. More than one billion people worldwide are affected by it, and it is a significant contributor to



cardiovascular disease and mortality. The rise in hypertension is attributed to urbanization, sedentary lifestyles, poor diet, obesity, and population aging. Many people are not diagnosed until complications arise because the condition is often asymptomatic at first. Effective management of hypertension requires early detection and preventive measures.

Epidemiology: Non-communicable diseases are most frequently caused by hypertension worldwide. Age is a significant factor in the prevalence of this condition, which is linked to environmental, genetic, and socioeconomic factors. Low- and middle-income countries bear a significant portion of the global burden due to inadequate healthcare access, insufficient screening programs, and poor awareness. Unregular hypertension can result in complications such as: Stroke, Heart failure, Chronic kidney disease, Coronary artery disease, Peripheral vascular disease, Retinopathy.

Pathophysiology: The blood pressure is determined by cardiac output and peripheral vascular resistance. When one or both of these factors are continuously elevated, hypertension develops. Numerous mechanisms are involved in its growth: A surge in sympathetic nervous system activation is a potential outcome. RAAS is more active than other systems, Endothelial dysfunction, Sodium and water retention, Vascular remodelling and arterial stiffness are factors that must be considered, Genetic predisposition, Altered natriuretic responses. Over time, all these mechanisms interact to promote sustained increase in blood pressure and target organ damage.

Risk Factors: The risk factors for hypertension can be categorized as either non-invasive or modifiable. Looking into these categories further-

Non-Modifiable Risk Factors include- Increasing age, Family history of hypertension, Male sex (earlier onset), Ethnicity, Genetic predisposition. **Modifiable Risk Factors** include High sodium intake, Obesity and overweight, Physical inactivity, Excessive alcohol consumption, Tobacco use. Unhealthy diet, Chronic stress, Poor sleep quality, Diabetes mellitus, Dyslipidaemia.

Importance of Early Detection is imperative in cases for early detection

In the event of early detection, it is possible to intervene before irreversible heart and kidney impairment occurs. A significant number of hypertension patients are unaware of their condition as symptoms are typically not present. Routine screening is therefore essential.

Benefits of early detection include: Reduction in cardiovascular injuries, the prevention of target organ damage, such as heart, brain, and liver, Improved quality of life, Low healthcare expenditure, Reduces morbidity and mortality.

Methods of Early Detection includes 3 methods as such:

Office Blood Pressure Measurement. Maintain comfort by sitting comfortably for at least 5 minutes, keeping your back supported and keep your feet flat on the floor. Appropriate cuff size, get ready to avoid caffeine, tobacco, and physical activity for half an hour before going out. A minimum of two readings are to be obtained.

Home Blood Pressure Monitoring- The monitoring of blood pressure at home provides useful information about daily patterns, allowing for identification: White-coat hypertension, Masked hypertension, Treatment effectiveness, **Ambulatory Blood Pressure Monitoring-** The gold standard for measuring hypertension is ABPM. Blood pressure is assessed during regular activities and sleep for the entire 24-hour period.

Advantages include: Detection of nocturnal hypertension, Identification of circadian blood pressure change, Improved diagnostic accuracy. Improved forecasting of cardiovascular disease



risk.

Screening Recommendations for Regular blood pressure testing is recommended for all adults are- In adults aged 18-39 years, if there is low risk, the age group should be monitored every 3-5 Years. Yearly, adults who are 40 years old or older will experience changes in their health. Those with risk factors should be monitored more often.

High-risk groups include: Obese individuals, Patients with diabetes. Those who have been diagnosed in the family with hypertension. Those with chronic kidney disease- People with cardiovascular disease, **Prevention Strategies, Primordial Prevention**, Prevention of risk factors begins with preventing their development, Encourage the development of a healthy diet for young people. Promoting regular exercise- helps in Prevention of obesity.

Education for individuals to promote healthy lifestyle habits tis as certain preventions few of them are as followed- **Primary Prevention**- Prior to hypertension, individuals at risk should be targeted for primary prevention. **Dietary Modifications**-Maintain a sodium intake of no more than 2 grams per day: Eat more fruits and vegetables. Use the DASH diet to control hypertension. **Physical Activity** which Aims to perform moderate-intensity aerobic exercise for at least 150 minutes every week. Performing muscle-strengthening exercises for at least 2 days per week. There are factors such as- **Weight Management** to ensure that individuals possess a respectable body mass index (BMI). A small amount of weight loss is enough to bring down blood pressure significantly. **Alcohol and Tobacco Control**. Limit alcohol consumption.

A complete cessation of smoking is strongly suggested. **Stress Management** Mindfulness and meditation, Yoga. adequate sleep, relaxation techniques. **Role of Public Health** in prevention of hypertension must be based on population-level measures. These includes community screening programs, public awareness campaigns, salt reduction policies, access to affordable healthcare, health and fitness programs for school and workplaces, problems affecting Early Identification and Prevention, despite advances, several barriers remain: Lack of awareness. Lack of effort in implementing lifestyle changes, Socioeconomic disparities and the screening of rural and underserved populations is restricted cultural and educational barriers. These challenges can only be tackled by individuals and communities working together as healthcare providers, policymakers or the general public. Future Directions-

The emergence of new technologies presents numerous opportunities for controlling hypertension, such as: Devices designed to monitor blood pressure through wearable technology. Mobile health applications, Telemedicine services.

Prediction: Artificial Intelligence is used to predict risk. Personal protective measures are established through genetic profiling. These advancements could enhance accessibility, adherence, and early diagnosis.'

Conclusion: Hypertension remains a significant public health issue worldwide due to the rarity of its symptoms, making early diagnosis through screening essential. By implementing prevention strategies like lifestyle change, risk factor control and public health interventions, the prevalence of disease can be significantly reduced. People, healthcare systems, and policy makers must work together to prevent hypertension and its related issues. A quick diagnosis and control of this quiet epidemic are the most effective measures available.

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