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Hypertension and role of dash diet (To reduce morbidity and mortality rates)

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Abstract

Hypertension means increase in pressure exerted by the blood on the arteries. It is a common condition in which the long-term force of the blood against the artery walls is high enough that it may eventually cause health problems. It usually develops over the course of several years. Usually, individual do not notice any symptoms. But even without symptoms, hypertension can cause damage to the blood vessels and organs. Thus, its prevention and early detection along with management is important. Prevention is only possible when one knows about the risk factors and causes of hypertension and management is by early detection and limiting the causes that cause hypertension.

Keywords: Yucatec maya, traditional medicine, plant use, herbalist

Introduction

Blood pressure reading is given in millimeters of mercury (mmHg). It has 2 components:

- Systolic pressure (upper): It measures the pressure in the arteries when the heart beats.
- Diastolic pressure (lower): It measures the pressure in the arteries when the heart rests between beats.

Normal levels of blood pressure: 120/80 mmHg.

According to WHO

1. An estimated 1.13 billion people worldwide have hypertension.
2. In 2015, 1 in 4 men, 1 in 5 women had hypertension.
3. Hypertension is the cause of premature death worldwide.
4. One of the global targets for non-communicable diseases is to reduce the prevalence of hypertension by 25% (baseline 2010).

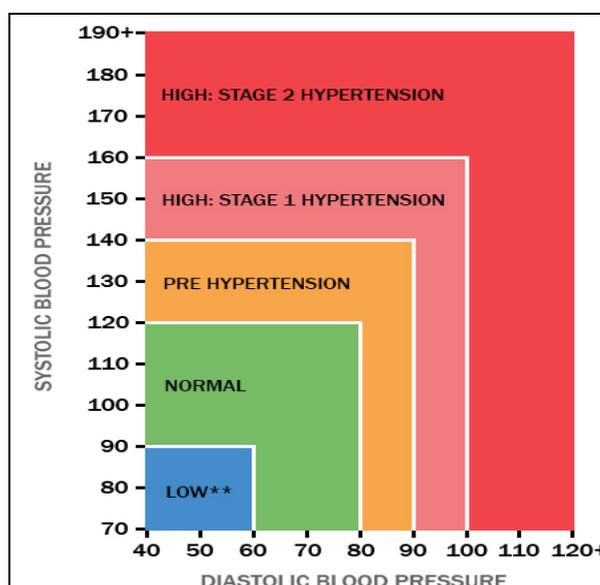


Fig 1: Shows of blood pressure

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Risk factors and causes

In India, with transformation in every little thing we have seen a radical shift in diseases from communicable to non-communicable diseases that include Hypertension, Cancer, Cardiovascular diseases, PCOD, etc.

Most randomized controlled studies have shown that even a modest weight loss is associated with a significant reduction in blood pressure of roughly 3mmHg in overweight people.

Individual factors

The incidence of hypertension becomes more prevalent with age.

Genetics plays a significant role in determining who will become hypertensive. As much as 20-40% OF BP variations in the general population have been attributed to genetic factors. Along with these, lifestyle factors such as dietary patterns are implicated as one of the highest contributors to the continued high prevalence of hypertension.

Being overweight or obese also influences the blood pressure levels.

Dietary factors

- Epidemiological studies indicate a positive association between dietary salt intake, level of BP and prevalence of hypertension.
- There is an inverse relationship between intake of potassium and calcium with BP.
- Alcohol intake is found to be significantly and positively related to both SBP and DBP and a change in alcohol intake was followed by a change in BP.
- INTERSALT study indicated that higher dietary protein intake has favorable influences on BP.

Symptoms of hypertension and its complications

Most of the patients do not have symptoms and are not aware of their blood pressure even if they are high. This is the reason it is called a Silent Killer disease. In cases, where it is symptomatic following are the most common symptoms: severe headaches, nosebleed, fatigue or confusion, vision problems, chest pain, difficulty breathing and sometimes irregular breathing.

Complications of later effects of Hypertension include:

- Affecting the Heart: Atherosclerotic coronary artery disease, microvascular diseases and vascular arrhythmias.
- Affecting the Brain: Infarction, hemorrhage (intracerebral or subarachnoid).
- Affecting the Eye: Hypertensive retinopathy.
- Affecting the Kidney: Chronic kidney disease and renal failure.

Dash diet and its role in hypertension

The DASH (Dietary Approaches to Stop Hypertension) diet

plan was developed to lower blood pressure without medication in research sponsored by National Institutes of Health. It emphasizes the right portion sizes, variety of foods and nutrients to be consumed. It encourages to reduce sodium diet & consume a variety of food rich in nutrients that help in lowering blood pressure, such as potassium, calcium and magnesium. It focuses on fruits, vegetables, whole grains and lean meat.

The diet was created after researcher's noticed that high blood pressure was much less common in people who followed a plant based diet, such as vegans and vegetarians. Scientists believe that one of the main reasons people with high blood pressure can benefit from this diet is because it reduces salt intake. (Recommended intake – 3/4th to 1 tbs).

Let's have a look on some of the ingredients included in DASH diet:

1. **Dietary Fats:** Effects of dietary fats on blood pressure have also become more evident through observational and experimental research. It is observed through experiments that voltage-gated Ca²⁺ current density is significantly increased in hypertension and can be affected by free fatty acids (FAs). It includes: Butter, Beef or Pork fat, Margarine, Fried food and processed snacks etc.
2. **Sodium:** It has been studied extensively in animal experimental models, in epidemiological studies, controlled clinical trials and in population studies that salt or sodium intake has been directly correlated with mean blood pressure levels and prevalence of hypertension in many populations. (INTERSALT Study).
3. **Potassium:** A protective effect of potassium on blood pressure was suggested by clinical studies reporting that severe short term potassium restriction includes salt sensitivity in normotensive humans, as well as the blood pressure lowering effect of potassium supplements to the diet in hypertensive subjects.
4. **Nuts:** There is an inverse dose relation between the frequency of nuts and blood pressure values. But these should be consumed as per the desired energy levels.
5. **Protein:** Studies like observational and RCT's have demonstrated that protein supplementation or the replacement of protein for fat or carbohydrate results in lower blood pressure.
6. **Magnesium:** Magnesium as a potential dietary antihypertensive has been investigated in numerous studies. When compared to persons using regular table salt as a seasoning, ingestion of a "Smart Salt" composed of 50% sodium chloride, 25% potassium chloride and 25% magnesium ammonium potassium chloride, led to significantly lower blood pressure over 8 weeks.
7. **Others include:** Dietary fiber should be increased. Alcohol should be reduced.

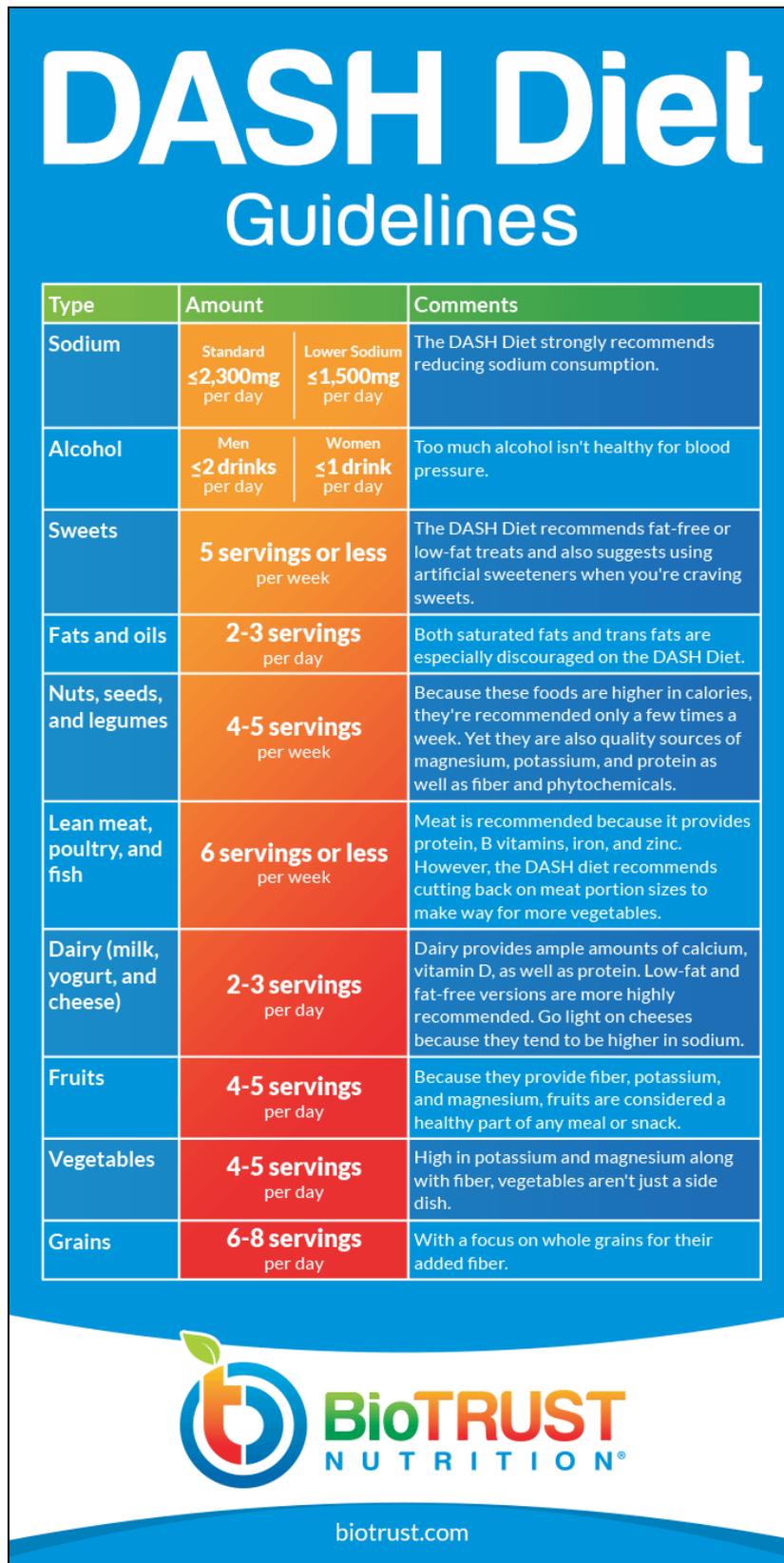


Fig 2: Shows in DASH Diet guidelines

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