ROLE OF DIET AND LIFE STYLE MODIFICATIONS IN CONTROLLING HYPERTENSION

Pradip Kumar Das, Eshita Das
Consultant Physician & Dermatologist, M.B.B.S., DSM, DTM&H, FHM M. PHIL Ph.D., Fellow in IMA, AMS, Jt. Secretary, IMA
Bengal State Branch, President, IMA, Serampore Branch
Email: eshitadas@gmail.com

ABSTRACT

Hypertension or high blood pressure can cause serious damage to the arteries and afterwards uncontrolled high blood pressure increases the risk of heart disease, stroke and kidney disease. Diet and nutrition have been extensively investigated as risk factors for major cardiovascular diseases like high blood pressure, coronary heart disease and stroke. Adequate evidence is available, from studies conducted within and across populations, to link several nutrients, minerals, food groups and dietary patterns with an increased or decreased risk of Hypertension. Dietary fats associated with an increased risk of Hypertension include trans-fats and saturated fats, while polyunsaturated fats are known to be protective. Dietary sodium is associated with elevation of blood pressure, while dietary potassium lowers the risk of hypertension and stroke. Regular frequent intake of fruits and vegetables is protective against hypertension. Composite diets such as DASH diets have been demonstrated to reduce the risk of hypertension. Sufficient knowledge regarding the recommendation of nutritional interventions, at both population and individual levels, for reduction of hypertension is now being used to promote healthy diets and discourage unhealthy diets. For its successful implementation in daily life requires coordinated action at all sectors like Government and International organizations, civil society and various sections of the food industry.

KEYWORDS: Hypertension, trans-fat, polyunsaturated fats, DASH diets

INTRODUCTION

Hypertensions are now the rising trend in recent times. High blood pressure or Hypertension has become a major public health problem all over the world. 15 to 20 deaths out of 100 are attributed to hypertension related diseases. Apart from the various risk factors like diabetes, smoking etc. changes in lifestyle and food habits are one of the important culprits blamed for it. So patients of hypertension or coronary heart disease whether staying in primary health center or Sub Divisional Hospital or District Hospital and Medical colleges, they need the good nutritional advices which are often overlooked by us. In developing countries, practice of unhealthy dietary behaviors often occur in association with other unhealthy behaviors such as physical inactivity and smoking. Moreover, unhealthy dietary habits such as high intake of saturated fats, salts as well as less intake of fruits and vegetables tend to cause hypertension or raised blood pressure, coronary heart disease and stroke. In observational studies, the question arises whether some dietary practices are merely a surrogate for other dietary practices or for a composite of multiple health behaviors. The effects of diet on multiple cardiovascular risk factors, ranging from body weight to blood lipids and blood pressure to thrombotic mechanisms, also raises the question of when and how far to adjust for these variables in evaluating the relationship of diet to hypertension and cardiovascular disease. So dietary advices have an important role in the non-medicinal management of Hypertension and Heart Diseases.

CAUSES OF HYPERTENSION

- Overweight
- Stress
- Physical Inactivity
- Low intakes of essential minerals
- Excess salt consumption
- Excess alcohol consumption
MATERIALS & METHODS

Studies focusing the effect of diet on hypertension or cardiovascular risk factors have applied a wide variety of study designs—ecological studies within and across populations, cross-sectional surveys, case-control studies, community based demonstration projects, randomised clinical trials and before-after type of metabolic studies.

RESULTS & DISCUSSION

The effect of various dietary fats on these plasma lipids has constituted the key link in the causal pathway that connects diet to CVD. Fatty acids are grouped into three classes—SFA, monounsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA). Outcome of large randomized clinical trials, in which replacement of saturated and trans fats by polyunsaturated vegetable oils effectively lowered CHD. Anti-oxidant nutrients, which can directly scavenge free radicals, would be protective against atherosclerotic vascular disorders. It has been studied extensively in animal experimental models, in epidemiological studies, controlled clinical trials and in population studies on restricted sodium. This rise in blood pressure was related to an increase in salt consumption and a reduced dietary intake of potassium. DASH diet trial further strengthen the conclusion that salt restricted diets lowers blood pressure effectively. The effects of increased fruit and vegetable consumption on blood pressure alone or in combination with a low-fat diet, were assessed in the DASH trial. While the combination diet was more effective in lowering blood pressure, the fruit and vegetable diet too lowered the blood pressure in comparison to the control diet. The relationship of alcohol to overall mortality and cardiovascular mortality has generally been J-shaped, when studied in western populations in whom the rates of athero-thrombotic vascular disorders are in up-rise trend.

ROLE OF DASH DIET (DIETARY INTERVENTIONS TO STOP HYPERTENSION)

- Involves eating more fruits, vegetables, whole-grain foods,
- Low-fat dairy, fish, poultry, and nuts.
- Eating less red meat, saturated fats, and sweets.
- Reducing sodium in our diet can also have a significant effect.
- Eating foods that are rich in magnesium, potassium and calcium.
- Addition of more whole grains and cereals like jowar, bajra, oats in the diet.
- Instead of taking common snacks like chips, namkeen, biscuits
- Allicin in Garlic is the substance has been shown to relax the blood vessels and ultimately reduces the blood pressure.
- The long chain Omega-3 fatty acids EPA and DHA obtained from the Fish oils and Flax seeds, has been studied to improve the elasticity of the arteries which in turn reduce the blood pressure and vascular resistance.
- Coenzyme Q10 obtained from fresh fish, spinach, broccoli, peanuts, wheat germ and whole grains are very effective nutritional antihypertensive agent.

DAILY MENU OF FOOD GROUPS AND DAILY SUGGESTED SERVING AMOUNTS

- Grains : 7-8 daily servings
- Vegetables : 4-5 daily servings
- Fruits : 4-5 daily servings
- Fat free dairy products: - 2-3 daily servings
- Nuts, seeds and dry beans: - 4-5 servings per week
- Fats & oils : 2-3 daily servings
- Meat, poultry and fish: 2 or less daily servings
- Sweets : less than 5 servings per week
### Table 1 Evidence for diet and risk of Hypertension

<table>
<thead>
<tr>
<th></th>
<th>Increase in risk</th>
<th>Decrease in risk</th>
<th>No relation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Convincing</strong></td>
<td>Increased Fatty acids</td>
<td>Fruits, berries and vegetables</td>
<td>Vit.E supplements</td>
</tr>
<tr>
<td></td>
<td>Increased Sodium intake</td>
<td>Fish and Fish oil (EPA &amp; DHA)</td>
<td>Potassium</td>
</tr>
<tr>
<td></td>
<td>Increased alcohol intake</td>
<td>Physical activity</td>
<td>Low to moderate alcohol intake</td>
</tr>
<tr>
<td></td>
<td>Obesity</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Probable</strong></td>
<td>Dietary cholesterol ALNA Stearic acid Unfiltered boiled coffee OA b-Carotene supplements</td>
<td>Non-starch polysaccharides (fibre) Whole grain cereals Nuts (unsalted) Folate Plant sterol</td>
<td>Stearic acid</td>
</tr>
<tr>
<td><strong>Possible</strong></td>
<td>Fats rich in lauric acid impaired fetal nutrition</td>
<td>Flavenoids Soy products</td>
<td></td>
</tr>
</tbody>
</table>

### LIFE STYLE MODIFICATIONS FOR PREVENTION OF HYPERTENSION

- Regular exercise helps lower our blood pressure. Adults should get about 150 minutes of moderate-intensity exercise every week. That could include gardening, walking briskly, bicycling, or other aerobic exercise.
- Muscle-strengthening activities are recommended at least two days a week and should work all major muscle groups.
- Meditation can put our body into a state of deep rest, which can lower our blood pressure. Yoga, tai chi, and deep breathing also help.
- Stop smoking and reduce the intake of dietary saturated fat
- Limit the consumption of alcohol to no more than 720 ml of Beer, 300 ml of wine, 60 ml of Whisky per day.
- Reduction of overweight and maintaining normal ideal body weight
- Reduction of sodium intake in our daily diet not more than 6 gm salt (1 Table spoon)
- Maintaining adequate intake of potassium, calcium and magnesium in our daily diet.

### FURTHER RESEARCH TO BE RECOMMENDED

Clinical trials using composite dietary interventions (such as the low sodium-DASH diet or a low sodium-Lyon diet) to evaluate the impact on comprehensive (absolute) cardiovascular risk profile, incorporating multiple cardiovascular risk factors in relation to diet, nutrition and prevention of hypertension.

### RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Development and implementation of food and agriculture policies, which will enable adequate production and domestic supply of fruits, vegetables and whole grain cereals at affordable prices to all segments of the population.
- Development and implementation of policies related to edible oil production and domestic supply, which will enable consumers to exercise healthier choices, in accordance with the nutrient recommendations made in this report.
- Development and implementation of policies involving urban planning and transport for creating facilities for supporting regular physical activity by all people of all ages.
- Development of national standards for manufacture and marketing of fats and oils and utilising mass communication channels to promote national and community-based nutrition education.
RECOMMENDATIONS TO INDUSTRY

Making low sodium and low fat foods widely available in the market through appropriate manufacturing practices and lowering the sodium content of regularly consumed foods like breads and cereals. In clinical practice, the role of diet as an effective vehicle of primary and secondary prevention of CVD must be stressed in national and international guidelines. For the successful implementation of these guidelines, health professionals must be trained to comprehend and communicate dietary advice through counseling, contacts with individuals and groups. Dietary advice should be treated as an effective remedy to risk reduction. Food-related dietary guidelines should be developed at the local, regional or national level to involve people, patients, professionals and policy makers to clarify the practical dietary measures needed to promote cardiovascular health.

REFERENCES