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| Sl.No. | Subject | Paper Code | Topic | Format | Name | Contact Details |
|--------|----------|--------------------------------------|--------------|--------|-----------------|---|
| 9 | Home Sc. | NMOM CC5-Therapeutic Nutrition | Hypertension | PDF | Dr.Punam Kumari | PG Dept. of Home Science, MMC,PU,Patna |

M A – H. Sc. Sem II
Therapeutic nutrition → CC5

Unit-III : Hypertension

Introduction:

Every individual blood pressure which is necessary to move blood through arteries and to provide oxygen to the tissues of the body.Hypertension is elevated blood pressure. According to WHO-hypertension is a condition in which systolic pressure exceeds 160 mm Hg and diastolic pressure exceeds 95 mm Hg.High blood pressure is not a disease but only a symptom indicating that some underlying disease is progressing.

Prevalence: An estimated 1.13 billion people worldwide have hypertension.In India 29.8% people are suffering from hypertension.

Causes of Hypertension:

A. Primary causes:

Age-The risk of developing high blood pressure increases as the age advances. Blood pressure can increase steadily with age as the arteries stiffen and narrow due to plaque deposit.

Heredity-This may be from gene mutation or genetic abnormalities inherited from parents.

A high intake of salt-Too much sodium in diet can cause body to retain fluid,which increase blood pressure.

Lack of exercise- lack of physical activities and poor diet can lead to weight problems and being obese can increase the risk for hypertension.

Stress- High levels of stress can lead to a temporary increase in blood pressure.

Smoking- cigarette raises blood pressure. Nicotine in the tobacco causes the release of adrenaline and non-adrenaline from the adrenal glands which increases blood pressure.

Obesity- Individuals with obesity need to supply more oxygen and nutrients to their tissues. As the volume of blood circulated through blood vessels increases, so does the pressure on artery walls.

Drinking alcoholic beverages in large amount- Over time, heavy drinking can damage heart and hence affect blood pressure.

High viscosity of blood -If blood viscosity increases , then the total peripheral resistance will necessarily increase, thereby reducing blood flow.

Narrowing of the main blood vessels -when the blood vessel narrows, blood flow is also reduced. At the same time, the resistance or force of blood flow is raised. This causes hypertension.

Too little potassium in diet - Potassium helps balance the amount of sodium in the diet. If the amount of potassium is not enough in the diet hence it may accumulate too much sodium causing hypertension.

B. Secondary causes:

Kidney disease - renal hypertension is caused by a narrowing in the arteries that deliver blood to the kidney.

Diabetes -Diabetes damages arteries and makes them targets for hardening called atherosclerosis. That can cause high blood pressure.

Tumors of the brain or adrenal glands- These are responsible to develop high blood pressure.

Hyperthyroidism - It is a condition where the thyroid gland produces too much of thyroid hormone. When too much of this hormone is produced, the heart is forced to work harder than usual, which increases heart rate and raises blood pressure.

Oral contraceptive pills- Long term use of oral contraceptives containing estrogen induce an increase in blood pressure and sharply increase the risk of hypertension.

Pain killers- Non steroidal Anti- inflammatory drugs can raise blood pressure.

Types of hypertension:

There are two types of high blood pressure. They are as follows:

- **Primary hypertension**-This is also called essential hypertension because there is no known cause of high blood pressure. This is the most common type of hypertension. It is not related to another medical condition.
- **Secondary hypertension**-Another medical condition that causes high pressure, usually occurring in the kidneys, arteries, heart, or endocrine system.

Symptoms of high blood pressure:

- Headaches
- Shortness of breath
- Nosebleeds
- Dizziness
- Chest pain
- Visual changes
- Blood in urine
- Gastrointestinal disturbance
- Unexplained tiredness
- Failing memory

Measurement of blood pressure:

- Systolic pressure-This is the first ,or top pressure.It indicates the pressure in arteries when the left ventricle of the heart contracts and pumps out blood.
- Diastolic pressure-This is the second ,or bottom pressure.It is the reading of the pressure in arteries between heartbeats,when the heart is resting and dilating.

Complications: Uncontrolled high blood pressure can lead to complication including:

- Heart attack or stroke
- Heart failure
- Weakened blood vessels of kidneys
- Thickened, narrowed or torn blood vessels in the eyes
- Metabolic disorder
- Dementia
- Memory loss

Principles of diet:Low calorie,low fat, low sodium diet with normal protein intake is prescribed.

Dietary management:

Kempner' rice-fruit-sugar diet is very effective.It provides about 2000 kcals ,5gms fats 20 gms protein,20mg sodium and 200gms chloride.Rice is cooked in water or in fruit juice. No salt is added.The normal diet prescription of a hypertension patient is given as follows:

Energy: An obese patient must be reduced to normal body weight with low calorie diet.As a general rule 1000-1200 kcals are recommended.

Protein: A diet of 60 gms protein is recommended to maintain proper nutrition. If kidney diseases cause hypertension, low protein diets of 20-30 gms are recommended.

Fats: Since they are prone to atherosclerosis it is advisable to avoid a high intake of animal or hydrogenated fat.About 30 gms of vegetable oil is recommended.

Carbohydrate: Normal amount of carbohydrate is permissible.

Sodium: Sodium restricted diet is recommended. 2-3 gms sodium is introduced.

Foods to be allowed: Low sodium diet like bread, chapati, millets, oats without salt, vegetables like potato, drumstick, beans, vegetable oils, sugar, jaggery, honey, desserts, dried fruits except raisins and fresh fruits.

Foods to be avoided: Animal foods like meat, fish, chicken, eggs, beetroot, carrot, leafy vegetables, papad, chutney, pickles and canned foods. Milk is minimized in sodium restricted diet.

One day menu plan:

6a.m. - Tea

8a.m. -- Chapati, mix veg., apple

10a.m. - Orange juice

1p.m. - Rice or chapati, fish curry, bitter gourd vegetable, curd, cucumber raita

5p.m. - Roasted chana, moong halwa, tea or coffee

8p.m. - Chapati, dal mixed vegetable

9p.m. - Milk