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MA – H. Sc. Sem II
Therapeutic nutrition → CC5

Unit-III : Cardiovascular Diseases

Introduction:

Cardiovascular diseases are the number one cause of death globally, taking an estimated 17.9 million lives each year. These are disorders of the heart and blood vessels and include coronary heart disease and atherosclerosis. In 2016, the estimated prevalence of CVDs in India was estimated to be 54.5 million.

A healthy human heart is an extremely efficient muscular organ contracting and relaxing 1,00,000 times per day. The heart pumps the blood and pushes it through the body. Cardiovascular disease generally refers to conditions that involve narrowed or blocked blood vessels that can lead to a heart attack, chest pain or stroke. Arteries show generative changes as the age advances.

Risk factors

The following factors may play in the production of heart disease:

- **Heredity** : genetic variations help to develop cardiovascular disease. Short, stocky and short necked people are more likely to develop than tall and thin people.
- **Age** : usually occur after the age of 50 but sometimes occur earlier.
- **Stress** : long term stress can increase blood cholesterol, triglycerides, blood sugar and blood pressure. These are the common risk factors of heart disease.
- **Hormones** : when estrogen levels decline, levels of LDL cholesterol increase, and level of HDL cholesterol decrease leading to the build up of fat and cholesterol in the arteries that contributes to heart attack.
- **Obesity** : it raises blood pressure, plasma cholesterol, low density lipoprotein cholesterol.
- **Diabetes** : diabetes can damage blood vessels and this may be a great risk for heart disease.
- **Diet** : saturated and non saturated fats, excess salt and sugar eating in greater quantity.
- **Habits** : less exercise, no physical activities, drinking alcohol regularly and in large amount, smoking.
- **Drugs** : insulin.

Types and Symptoms of Cardiovascular diseases:

There are different types of cardiovascular disorders. They may have different symptoms and causes. Main diseases of the heart are:

- Hypertension
 - AtherosclerosisHypertension
 - Myocardial Infarction
 - Angina pectoris
 - Heart Failure
 - Coronary heart disease or Ischaemic heart disease
 - Rheumatic heart diseases
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- **Hypertension:** 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.
 - **Atherosclerosis:** This is a progressive vascular disease. This condition is characterized by hardening or thickening and loss of the arterial walls.The internal part of an artery- intima- is coated with cheesy plaque.The coronary arteries,which supply blood to the heart muscles,are affected because of the deposits of plaque containing fat,especially cholesterol. This plaque develops blood clots and blocks the blood supply within the heart and the heart muscles suffer from lack of oxygen causing myocardial infarction the damage is sever the heart fails to function.It leads to heart attack and stroke or peripheral vascular diseases.
 - **Myocardial Infarction:** It is a pathological condition where the heart muscles become dead or necrotic due to the deprivation of its oxygen supply.Symptom of myocardial infarction is chest pain .The pain is a peculiar crushing in nature and radiates to the left arm and neck.The patient feels a sense of suffocation, nausea sweating and a feeling of cold.
 - **Angina Pectoris:** Chest pain radiating the left side , due to insufficient supply of blood or oxygen to the heart is termed as pectoris.The pain occur when the heart muscles can not get enough oxygen.Pain is felt in the centre of the chest,the lower jaw and in the left arms up to the wrist and hands. Pain is felt while climbing the stairs,especially in the cold climate.
 - **Heart Failure:** Heart failure is a condition in which the heart can not pump enough blood to meet the body's needs.Certain conditions such as narrowed arteries or high blood pressure makes the heart weak or stiff to fill and pump efficiently. Symptoms includes, breathlessness,sweating,chronic cough, edema, lack of appetite a high heart rate and confusion. Often mistaking it as gas problem, antacids are taken by the people and it is fatal.This usually happens slowly and affect other organs like liver,kidneys and brain because of the decreased blood flow.
 - **Coronary heart disease (Ischaemic heart disease):** A disease in which there is a narrowing or blockage of the coronary arteries(blood vessels that carry blood and

oxygen to the heart).blockage is caused by a build- up of fatty substances in the the walls of coronary arteries. Over times, the walls of arteries become thick with fatty deposits.

Rheumatic heart disease: Rheumatic heart disease is an inflammatory infectious disease characterized by fever and joint pain.It is a condition in which the heart valves have been permanently damaged by rheumatic fever.The heart valve damage may start shortly after untreated or under-treated streptococcal infection such as strep throat or scarlet fever.

Dietary Management

Objectives:

- Maximum rest for the body.
- Maintenance of good nutrition.
- Understanding of recommended foods.
- Provide relief from the disease.
- Provide sufficient energy.

Principle of diet: Low calorie, low fat particularly low saturated fat, low cholesterol,low carbohydrate and normal protein,minerals and vitamins are suggested. A high fibre diet is also suggested.

Dietary modification:

Energy: the total calorie should be restricted so as to reduce the weight to the expected normal for the height,age and sex. Mild weight loss for cardiac patient is beneficial.Usually, a 1000- 1200 kcal diet is suitable for an obese patient in bed.

Carbohydrates: Since total calorie is restricted , carbohydrates intake should be reduced.These must be adequately provided in the complex form.

Fats: 20 percent fat of total calories is permitted.severe restriction of fat results in mental and physical depression.Proportion of saturated to monounsaturated to polyunsaturated fat should be 1:1:1.

Proteins,vitamins and minerals: Normal allowances are recommended.animal protein and fat s are not suggested.Since total animal fat is restricted,vitamin A deficiency may occur.Therefore,supplement of vitamin A is essential.

Sodium: Sodium restricted diet is recommended whenever there is a retention of sodium in the body along with fluids. Sodium may be permitted 1600- 2300 mg /day.

Fluid: The restriction of fluid is not required.If fluid retention in the body is seen,then restriction of fluid is introduced.

Foods to be avoided:

1. Salted butter and processed cheese.
2. Baked products.
3. Sea fish, salted dry fish,salted meat.

4. Papad, pickles, chutneys, sauces.
5. Fruits- litchi and musk melon, tender red gram, field beans.
6. Coconut and coconut water.

Dietary guidelines:

- Reduce weight and maintain calorie intake.
- Maintain work and rest.
- Take regular walks and exercise.
- Controlled diet.

Ref.Books :

- (1) Dietetics –by B.Srilakshmi (2002),pp.194-217
- (2) Nutrition and Dietetics -by Shubhangini, A. Joshi (1999),pp.244-261
- (3) A Textbook of Foods, Nutrition and Dietetics -by Raheena Begum.p.281-293