Coronary Heart Diseases (CHD)

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Agenda

- Pathophysiology of CHD
- Risk factors of CHD
- Symptoms of CHD
- Diagnosis of CHD
- Treatment of CHD
- Management of CHD
PLEASE LOOK AFTER ME!

- Coronary Artery Disease is the no.1 Leading Cause of Morbidity and Mortality worldwide

- It is estimated that by 2030 almost 25 Million people will die from Cardiovascular Disease

WHO (2012)
Coronary artery

Coronary artery is a vasa vasorum that supplies the heart.

Coronary comes from the Latin "Coronarius"
Meaning "Crown".
Coronary artery

- The coronary artery arises just superior to the aortic valve and supply the heart.

- The aortic valve has three cusps -
  - left coronary (LC),
  - right coronary (RC),
  - posterior non-coronary (NC) cusps.
What is coronary artery disease (CAD)?

CAD is a narrowing of the coronary arteries that prevents adequate blood supply to the heart muscle. Usually caused by atherosclerosis, it may progress to the point where the heart muscle is damaged due to lack of blood supply, and it may cause infarction, arrhythmias, and heart failure.
Coronary artery disease occurs when part of the smooth, elastic lining inside a coronary artery develops atherosclerosis.

Atherosclerosis may including calcium deposits, fatty deposits, and abnormal inflammatory cells to form a plaque.

Deposits of calcium phosphate plays significant role of induction of an early phase of coronary arteriosclerosis.
Normal lumen
Atherosclerosis
Intimal rupturing
Dissection

Coronary artery dissection

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Spasm

Coronary artery spasm

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Risk factors of CHD

Factors that increase the risk of CHD include:

- Hypertension
- Dyslipidemia
- Diabetes
- Smoking
- Physical inactivity
- Obesity

Controllable
Risk Factors (cont’d)

Gender

Heredity

Age

Uncontrollable
Major Risk Factors:

- Smoking
- Diabetes
- Hypertension
- Dyslipidemia
Symptoms of CHD

Chest pain (angina)
((Heaviness, tightness, pain, burning, pressure or squeezing behind the breastbone or in the arms, neck, or jaws))

Dyspnea
Sweating

Nausea
Dizziness
Myocardial infarction (MI)

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Diagnosis of CHD

- Electrocardiogram
- Cardiac enzymes
- Echocardiograms
- Stress Tests
- Nuclear Imaging
- CT Angiography
- Coronary Angiography
Treatment of CHD

Medical Treatment
- Aspirin
- Clopidogrel
- B. Blockers
- Calcium channel blockers
- Statins
- ACE inhibitors
- Nitroglycerin

Revascularization
- PCI
- CABG
Management of CHD

- By Controlling Major risk factors
- And life style modification
Diabetes Management

Controlling HbA1c (6.5 - 7)

Following healthy diet

Medical treatment

preventive therapy
Hypertension Management

High blood pressure increases the risk of CHD.

Blood pressure tends to be raised in people who:

very overweight
Drink a lot of alcohol
Take little exercise
Smoker
Increase salt intake
Dyslipidemia Management

Cholesterol and the diet

The level of blood cholesterol is affected by the amount and type of fat in the diet.

High intakes of saturated fatty acids, and of total fat, can increase the amount of cholesterol in the blood, and therefore increase the risk of CHD.

Most people are consuming too much saturated fat and need to switch to foods containing unsaturated fat or remove visible fat.
Fatty acids

Fatty acids can be divided into two groups:

1) **Saturated** – these have the hydrogen atoms they can hold and all are single chemical bonds, e.g. **Stearic acid.**
   ((Animal fats))

2) **Unsaturated** – these have some hydrogen atoms missing and contain double bonds.
   - **Monounsaturated** – this is where there is one double bond, e.g. **oleic acid.**
     ((Olive oil))
   - **Polyunsaturated** – this is where there are more than one double bond in the compound, e.g. **linoleic acid.**
     ((Flax oil, Sunflower oil & Corn oil))
Distribution of fat

The distribution of fat in the body also affects risk. People who have a high proportion of fat around the central part of the body (‘apple shaped’) have a greater risk of CHD than those who have most of their fat around the hips and thighs (‘pear shaped’).

- Men tend to be more ‘apple shaped’ whereas
- Women tend to be more ‘pear shaped’.

Apple shape vs pear shape

- Apple shape: More visceral fat, Higher risk of weight-related health problems
- Pear shape: Less visceral fat, Lower risk of weight-related health problems
Reducing cholesterol in the diet

Before cholesterol can be deposited on blood vessel walls, it is changed by a chemical reaction called **oxidation**. Substances called **antioxidants** can help to prevent this reaction happening and so **reduce the amount of deposit formed in the blood vessels**.

Examples of antioxidants include vitamins A, C, and E. These are found in **fruit and vegetables**.
Reduce blood cholesterol

Soluble fibre

Where is it found?
Soluble fibre is a type of dietary fibre (NSP) which is found in foods such as oats, vegetables and beans.

How is it good for heart health?
It has been shown to reduce blood cholesterol levels and therefore may reduce the risk of CHD.
Reduce clotting

Omega 3 fatty acids

Where is it found? Oily fish such as salmon, sardines and mackerel.

How is it good for heart health? Fatty acid found particularly in oily fish reduces clotting. Increased consumption of these foods, therefore, may reduce the risk of CHD.
CHD is the slow and the sudden death.

We must control risk factors.

Healthy diet and life style contributes to reducing risk factors.

Prevention best than cure.
THANK YOU

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