

Babylon University – College Of Medicine
Department of Community Medicine

*Lectures in Community Medicine
For 4th Stage Students
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Lecture 33

Coronary heart disease (CHD)

CHD continues to be the main cause of deaths all over the world.

- Manifestations of CHD:
- Stable angina
- Unstable angina
- Myocardial infarction
- Heart failure
- Arrhythmias
- Sudden death

CHD is caused by interaction of multiple factors. Disease causation is considered in terms of risk factors (factors associated with an increased risk of developing disease). The effect of risk factors is multiplicative rather than additive. A person with multiple risk factors (smoking, diabetes, central obesity, hypertension) has the greatest risk of developing the CHD. Risk factors can be classified as: modifiable and non-modifiable.

Non-modifiable risk factors:

- 1- age and sex: in postmenopausal women risk increases but evidence suggests that hormone replacement therapy reduces the risk. Age may also contribute by causing changes in the wall of the arteries.
- 2- family history: those with a family history of hyperlipidemia or hyperfibrinogenemia are more prone.

Modifiable risk factors:

1- Smoking:

Major risk factor, strong dose response relationship between the number of cigarettes smoked daily and CHD.

Studies reveal that cessation of smoking can prevent 15 deaths and 46 non fatal infarctions per 1000 patient years of treatment.

2- Hypertension: incidence increases with a rise in blood pressure.

3- Hypercholesterolemia: positive correlation between plasma cholesterol, morbidity and deaths from CHD (plasma cholesterol >220/dl). CHDs are directly related to LDL.

High density lipoprotein HDL has a protective effect and should be more than 30 mg/dl. Cholesterol / HDL ratio can be used to predict risk from CHD. A ratio of <3.5 is the clinical goal of CHD prevention

4- Physical activity:

Regular exercises increase HDL cholesterol and reduce blood pressure.

5- obesity: mainly central is an independent risk factor of CHD (waist circumference > 102 cm for males and > 88 cm for females, or waist / hip ratio > 1 indicate risk association).

6- Alcohol: high alcohol intake of 75 gm or more per day is an independent risk factor ‘

7- Dietary factors: diet deficient in fresh fruit, vegetables and polyunsaturated fatty acids. Decreased levels of vitamin C, vitamin E and other antioxidants are implicated.

8- Mental stress: stress can aggravate symptoms of established heart disease. Type A personality more prone to CHD.

9- Oral contraceptives: women on oral contraceptives have higher blood pressure, and if those women are smokers they will be at a very high risk of CHD.

Prevention and control of CHD:

1- Primordial prevention: this involves prevention of spread of CHD risk factors and lifestyles that have not yet appeared in the population.

Following healthy eating habits, lifestyles like regular exercises are essential steps. Ideally this should be started in early childhood. Health education is an important strategy for primordial prevention. This level of prevention needs national policies and programs on healthy food and nutrition, policies to discourage smoking, programs to prevent hypertension and programs to promote regular physical activities.

2- Primary prevention: which includes;

A- Health promotion; involves;

1- Dietary changes.

2- Cessation of smoking and alcohol.

3- Regular exercise

4- Avoidance of stress.

B- Specific protection:

1- Use of polyunsaturated fatty acids.

2- Limiting fat intake to 30% of daily caloric requirements.

Principles of dietary modification:

1- Reduce fat intake to 20-30% of total energy intake.

2- Saturated fat consumption less than 10% of total energy intake.

3- Fiber rich diet (cereals, fruits, whole grains, legumes).

4- Avoid alcohol, reduction of salt to 5 gm daily or less.

3- Secondary prevention:

Early diagnosis:

A- High risk screening

B- Routine periodic investigations of persons with family history.

C- Stress test e.g. tread-mill to identify early cases showing normal routine ECG.

Treatment:

Medical treatment:

Treatment of other risk factors like hypertension, diabetes etc...

Drugs: nitrates, beta blockers, calcium channel blockers etc...

Surgical treatment: coronary arterial bypass

4- Tertiary prevention:

A- Disability limitation:

Balloon angioplasty

B- rehabilitation:

1- Physical

2- Occupational

3- Psychological.