

Epidemiology and prevention of Non communicable diseases (NCD)

Chronic noncommunicable diseases are the major cause of **death** in almost all countries and account for **36 million** deaths each year. 80% of chronic noncommunicable disease deaths occur in **low- and middle-income countries** – where most of the world's population live.

The leading chronic diseases are:

- Cardiovascular disease (CVD),
- Cancer
- Chronic respiratory disease
- Diabetes

NCDs differ from communicable disease in few important points:

- 1- They are not communicable.
2. They do not have a defined incubation period—
3. Agents are vague (multifactorial causation)—
4. Natural history if often uncertain/unpredictable—
5. The boundary between diseased and nondiseased is very blurry —
6. Slowly progressive—
7. Usually nonreversible and permanent pathology—
8. Leave some residual disability and rehabilitation is *necessary*—
9. Definite lag period between behavioral change and disease progression—

Cardiovascular diseases

The present mortality rates from cardiovascular diseases are the consequences of previous (20–30 years ago) exposure to behavioral risk factors such as **inappropriate nutrition, insufficient physical activity and increases tobacco consumption**. It is called the 'lag time' effect. *Behavioral risk factors are responsible for about 80% of coronary heart disease and cerebrovascular disease.*

Ischemic heart diseases

Impairment of heart perfusion compared to its need, due to narrowing of vessels; it may take the form of angina, myocardial infarction, heart failure or sudden cardiac death.

The Problem of IHDs

In most western countries, 30% of all deaths in men, 25% in women are caused by IHDs. Case fatality = 25–28% within 28 days (and 55% within first hour).

IHDs are a 'modern epidemic', one spread not from person to person but due to a lifetime of bad habits.

The ischemic heart diseases have a kind of 'incubation period' of 10 years, i.e. the lag period between behavioral change and onset of disease.

Risk factors :

Of all lipids, LDL cholesterol is most directly related to IHD.

Risk factors of IHD exclusive of LDL cholesterol:

- Smoking.
- Hypertension (BP > 140/90 or anybody on antihypertensive drugs) .
- HDL < 40 mg/dl.
- Diabetes mellitus.
- Family history of premature IHD.
- Age (men > 45, women > 55).
- Obesity (BMI > 30), physical inactivity.
- Alcohol > 75 g/day.
- Male sex/ postmenopause /OCP intake.
- Type A personality (the outgoing ones).
- Lack of dietary fibers, high cholesterol diet, too soft water, deficiency of polyunsaturated fatty acids, too much salt.

Prevention

Primary prevention (for everybody in population):

Specific protection. healthy diet, abstinence from smoking and alcohol, control of stress and hypertension.

Secondary prevention (for those with risk factors)

Screening for hypertension, hypercholesterolemia, diabetes and medical management of such diseases. Screening is recommended each 5 years in all adults over 20.

Because the treatment of an acute episode of IHD is costly and not successful in many cases, setting up more ICUs is not an effective community intervention

Tertiary prevention

Lifelong β blockers and Aspirin, angioplasty,

CANCER

A neoplasm is an abnormal mass of tissue, the growth of which exceeds and is uncoordinated with that of the normal tissues and persists in the same excessive manner after the cessation of the stimuli which evoked the change.

Commonest cancers by site

I. Lung—Commonest cancer in the *world* among men

II. Breast—Commonest cancer in the *world* among women

Survival

Although breast cancer is second in incidence to lung cancer, it does not cause as much mortality because once diagnosed, it is amenable to appropriate interventions, which lung cancer is often not.

Prevention

Primary prevention

1. Control of tobacco and alcohol consumption through education, legislation against smoking, restriction of smoking in public places.
2. Maintenance of **personal hygiene** and being in a monogamous relationship prevents HPV infection and carcinoma cervix
3. Lessen **radiation exposure**, esp. reduce unnecessary X-rays done (which exposes both the patient and the technician to radiation); provide personal protective equipment to workers in radiation plants/ radioactive mines.
4. Lessen **occupational exposure** to carcinogens through both engineering measures and personal protection.
5. **Immunization**—Hepatitis B vaccine is now being incorporated in National Immunization Schedule in countries including Iraq; the **human papilloma virus vaccine in some contrives** is now being used against HPV infection.
6. Legislation and surveillance of food additives, drugs and cosmetics.
7. Control of air pollution.
8. Treatment of precancerous lesions like cervical tears, polyposis, genital warts, chronic gastritis, chronic cervicitis.
9. Motivate people to recognize 'early signs' of cancer and seek treatment ('Cancer education').

Secondary prevention

Cancer registration

1. Hospital based registry
2. Population based registry

Early detection by screening,

Cancer screening is possible because

1. Precancerous lesions last for long periods before developing into cancer.
2. All cancers begin as localized growth before spreading.
3. Majority of cancer occur at accessible sites (skin and mucous membranes).

Treatment Surgery, radiation, chemotherapy

Tertiary prevention

1. Analgesia—Considered the right of the dying patient.
2. Rehabilitation--- (after amputation/ laryngectomy /colostomy/ facial surgery).