

Lecture 8

Epidemiology of Accidents

Definition: it is unexpected unplanned occurrence may lead to health, social or economic problems so (injuries are not accidents). Accidents and injuries are high priority public health problems, accidents is the fourth killer in developed countries nowadays and it is an increasing problem due to heavy traffic, crowded roads, industrialization.

Problem in the world:

Major modern epidemic of non communicable diseases.

8% of deaths all over the world are due to accidents (7.9% in developing and 7.5% in developed countries).

Account for two thirds of mortality in developing countries.

Age group most prone is 10-24 years.

Types of accidents:

1- Road Traffic Accidents (RTA).

2- Domestic (Home) accidents.

3- Industrial accidents.

Road Traffic Accidents:

Ranks first among all fatal accidents. They may be vehicle/pedestrian or vehicle/vehicle collision.

Risk factors:

Environmental risk factors of RTAs:

o Road defects: narrow, crowded, unpaved properly, inadequate lighting and cleaning, lack of traffic signs and instructions.

o Vehicle defects: great variability in size, great numbers, overburdened old models, bad maintenance.

Host factors of RTAs:

o Driver defects: unsatisfactory physical and mental abilities,

impaired alertness due to fatigue, worry, use of drowsing drugs, inadequate training, carelessness, accident proneness during behavior or psychic upset, alcohol abuse.

o Pedestrians defects:

- Personal factors (such as poor vision, hearing defect, or having chronic disabling diseases which reduce alertness), extreme of age are more prone to accidents (children, and old age people).**
- Negligence of traffic signals.**
- Obesity**

Prevention of RTAs:

1- Town planning.

2- Municipal services: road repairing and cleaning, lighting streets and putting proper road traffic signals and maintaining them.

Rules for maximum permissible speed inside and outside towns.

3- Drivers: health appraisal before license, training and education of traffic safety rules, check the use of seat belt.

4- Traffic supervision and examination for drug and alcohol dependence among drivers.

5- Vehicles: periodic inspection and repair.

6- Pedestrians: education and guiding for safety traffic rules.

Home accidents:

Types:

Burns: fire or flame, boiling fluids

Electric shock: neglected maintenance of electric instruments, sockets, wires (exposed wires).

Fall on stairs: slippery floor, striking on furniture.

Chemical poisonings: drugs, kerosene, caustic soda, carbon monoxide, and leakage of butane gas.

Wounds: by sharp knives or pointed articles swallowing of coins, bottoms or nails

Animal bites.

Collapse of the old buildings.

Host factors predisposing to home accidents:

- 1- Age: commonly at young and old ages.**
- 2- Diseases as epilepsy, diabetes and handicapping.**
- 3- Psychic upsets.**
- 4- Overconfidence of some persons to fix electric appliances without being qualified.**

Environmental risk factors:

- 1- The building materials are not safe.**
- 2- Bad illumination and bad ventilation.**
- 3- Slippery stairs and bathroom floor.**
- 4- Derangement of home furniture.**
- 5- Presence of drugs or chemicals in improper places (at reach of children)**

Prevention of home accidents: by prevention of risk factors

Occupational Accidents

These are accidents occurring among individuals during their work.

At risk group: Farmers, industrial workers, and mining workers.

Types of occupational accidents:

- 1. Handling accidents: during manual lifting and carrying articles.**
- 2. Falls: due to slippery floors.**
- 3. Striking against objects**
- 4. Falling objects on workers.**
- 5. Machinery entanglement of clothes, crushing of limb or trapping of body part by moving machine.**
- 6. Electric shock**
- 7. Burning and explosion of flammable liquid or combustible dust.**
- 8. Work transportation accidents for drivers.**

Host factors:

- 1. Age: increased among young age workers due to lack of training or negligence.**
- 2. Health status: poor health and physical abilities, acute illness as fevers, epilepsy, coronary heart diseases, defective hearing or vision and hypoglycemia.**

- 3. Psychological disturbance: psychic upset, worry, stress and fears.**
- 4. Negligence: of wearing protective clothes, or of precautions in dealing with machines.**
- 5. Lack of knowledge about the safety measures.**
- 6. Accident proneness: some persons are more prone to get accidents than others which may be due to neurotic factors and anxiety, low intelligence and emotional factors.**

Environmental factors

- 1. Bad environmental sanitation as ill ventilation, low or high temperature, poor lighting, and excess noise or vibration.**
- 2. Crowds, unsafe machines: either dangerous or unshielded or unearthed electrical power tools.**
- 3. Lack of safety and protective measures.**

Impacts of occupational medicine on work:

1. Health hazards:

Physical hazards: it causes impaired health and may causes handicapping and disability.

Psychic hazards: it may cause psychic upset and predispose to subsequent accidents in the prone workers. Also it may produce fear from work which may lead to decrease productivity and increased absenteeism rate.

2. Economic problems:

Accidents increase the expenses of medical care and rehabilitation.

Workers after accidents may shift to less technical and less productive jobs.

Workers compensation expenses are a burden on the work economy.

Prevention of industrial accidents:

1. Environmental factors control:

? Environmental sanitation of factories by good ventilation, lighting and cleanliness.

? Safety measures for fire and electric connections.

2. Work condition control:

? Good machinery design

? Good spacing between machines

? Good arrangement and maintenance of machines.

3. Human factors:

? Pre-employment and periodic medical examinations of workers.

? Health promotion of workers.

? Health education and safety rules education.

? Prevention of fatigue through work shift regulation.

4. Survey studies to search for causes of accidents and device appropriate measures needed for its prevention.

Control of occupational accidents:

1. First aid and emergency services at all workplaces.

2. Proper management of injuries to avoid complications.

3. Screening of accidents prone workers and shift them to suitable safer jobs.

4. Rehabilitation and retraining if disability occurs.