Open Vocational Education Programme
Course Code: 451

Certificate Course in COMMUNITY HEALTH

(Training Programme for Health Workers)

3

Prevention and Management of Diseases and Emergency

NATIONAL INSTITUTE OF OPEN SCHOOLING
(An autonomous organisation under MoE, Govt. of India)
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Certificate Course in Community Health (Prevention and Management of Diseases and Emergency – 451)

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Delhi

From the Chairperson's Desk

Dear Learners,

You are welcome at NIOS.

It's a matter of great pleasure that you have enrolled yourself in public health course of NIOS to become a skilled health worker. You have the study material of this course in your hand. It clearly highlights the importance of health for all of us. It also signifies the role of a health worker in public health.

This syllabus is divided into three parts. In the first part, the composition of the human body, physiology, immune system, cleanliness, eradication of common diseases and home remedies, nutrition, yoga etc. are included. It also includes chapters on quality life style, healthy eating habits, standard of living, and how we can make them better.

Maternity and infant health is second part of the syllabus, which includes health care in pregnancy, care of a woman during and after delivery, breast feeding and different national health programmes carried by the government. The problem of increasing population and its solution is also addressed under family welfare programmes.

In the third part of the course, information on contagious diseases, various diseases related to the life style, preventive measures, emergency management and methods of first aid are given. Subsequently, you shall learn about health treatment measures of such diseases. You are also expected to spread awareness on preventive measures related to such ailments, among the masses.

Learners, since health service is a responsibility, hence you would have to take the course very seriously. This study material would be meaningful only when you study it heartily and use it for the welfare of the society. A list of do's and don'ts for health worker is given in the very beginning of the text books. Read them again and again, and follow them. It is important to have sound knowledge and a good experience before giving health related treatment. Maharishi Charak also said in this context 'it is better to consume poison than to give someone treatment without knowledge and experience'. After getting training related to community health, you would not only be able to render service in the rural areas but also be able to work with doctors as a skilled health worker in various hospitals and nursing homes of the country. You would also be able to refer the patient to the concerned doctor after giving him/her the first aid in case of emergency.

To maintain the quality standard of this study material, a team of skilled, experienced and famous doctors had tried to understand the problems especially in the rural context. Your suggestions are also cordially invited to make this study material better.

I congratulate you to continue your study through NIOS. Now you are the proud and privileged member of NIOS community. After studying the course, you shall render valuable services to the community at large, particularly in the preventing health problems in the rural part of the country.

Prof. Saroj Sharma
Chairperson
National Institute of Open Schooling

A Word With You

Dear Learners,

I welcome you at National Institute of Open Schooling. By taking admission in the professional programme of this institute, now you have become member of the world's largest open school system. I am sure you would feel happy while studying as a student under professional programme at National Institute of Open Schooling. Before you commence the learning and training of this study material, I would like to give some useful advice. At National Institute of Open Schooling, we properly understand that you are different from other students. I comprehend that amongst you, some of you must have enriched personal experiences as well. This course shall not only make you skilled health worker, but shall also add to financial stability and social prestige. Most importantly its your vibrant energy and enthusiastic spirit, which made you take admission in this course.

This study, material has been developed in such a way that you do not need a teacher to teach the curriculum. It is advisable to be in touch with your affirmed professional institute to get study material and the information about examination programme, also obtain practical training at your study centre. These centres will provide you proper skillful training which is essential for getting proficiency in any professional course content.

Under the National Rural Health Mission, the Ministry of Health and Family Welfare, GoI, from time to time carries laudable programmes, with the aim of providing effective and accessible health facilities for the rural masses. Our national goal is "Health for Everyone". With the rapid increase in the population, poverty, lack of education, as well as shortage of doctors in the rural areas, comes a constant realization that there is a need to provide formal training to the such prospective students among the masses, who can extend significant contribution to the rural hospitals and health centres. At the same time they can also provide appropriate consultation, even timely first aid to the affected rural masses.

Also, if the need may arise, such trained health workers, can even play multifaceted active role in national health programmes at the respective state level.

I hope this course would provide you an important platform to work in the health sector and would be beneficial. On behalf of National Institute of Open Schooling, I wish you a bright future.

Dr. P.K. Chauhan

Programme Co-ordinator

National Institute of Open Schooling

Do's for the Health Worker

1. Understand the disease properly and enhance your knowledge, information in the health sector or hospital by being regular in touch with the doctors.

2. Follow the rules to prevent the disease, and tell people also about it.

3. Reveal the reality of various superstitious traditions, which is different from medical science.

4. Inform the masses about the basic rules of health defence. Stay away from various addictions and inform the masses as well about the harmful effects of such addictions.

5. You are a worker in the medical field, hence perform your duty as a community health worker in your medical institute or society.

6. Skilled health workers can give optimum help to the patient but in the case of serious and complicated diseases, work only by doctor's advice.

7. You are in the health service sector hence render selfless service to the masses. By doing so, you may realize both desired monetary gains as well as prestige.

8. Delivery and surgery are complicated services requiring intense experience, support, and study. Hence, assist surgeons and doctors.

9. Before giving health advice to someone, first study concerned person's eating habits and life style thoroughly.

10. In emergency, a health worker should be prompt in giving first aid according to the training. If needed, refer the patient to the concerned doctor.

Don’ts for the Health Worker

1. Do not be in a haste to start treatment by partial understanding of the illness. Take regular advice by the doctor.
2. Do not violate prevention rules.
3. Do not use blind superstitious methods in curing process which are different from the methods prevailing in medical science.
4. Actively inform people about the harmful effects of intoxication.
5. Do not consider yourself as a doctor as it needs more in depth study and experience. Do not be in a delusion that you know a lot. Fulfill your responsibility of community health care worker.
6. In serious condition, do not give medicine or injection to the patient without prior advice of the doctor. It can be harmful for both, the patient and your prestige.
7. Do not indulge in any such activity which brings disgrace to the medical service.
8. Do not attempt unusual delivery or surgery on your own. It can be dangerous for the patient’s life.
9. Always remember not to give improper advice.
10. Except from the training given to the health care worker, do not indulge in any other medication work.

Certificate Course in Community Health

COURSE CURRICULUM

Course Title: Certificate Course in Community Health

Level of the Cource: Certificate

INTRODUCTION OF THE COURSE

Two third population of India lives in rural area and have no access to proper health care facilities. The alma mater declaration of 1978 declared health as a fundamental right, and the attainment of highest possible level of health as a most important worldwide social goal. It also emphasized that such realization requires action from other social and economic sectors, in addition to the health sector. "Health for All" is the national goal and priority. There is an urgent need to provide para-professional health workers amongst the community itself, to provide simple preventive and curative health services including family planning, under the community workers scheme. The government launched Jan Swasthya Rakshak (Community Health Worker) Scheme to train 5,80,000 Health Worker on recommendation of Srivastave Committee in 1977. This Health Worker Scheme (1977) labelled as Communioty Health Volunteers in 1980 was re-labelled as village Health Guide in 1981. Due to population explosion, poverty, illiteracry and many other causes, the National Goal of "Health for All", has not reached up to its target level. There are many areas/sectors not only in rural but also in urban India, where:

- There are no fully developed medical facilities.
- According to population density, there are no doctors in sufficient numbers.
- No proper facility is available during emergency especially during night. There is also absence of trained and knowlegeable personnel to guide or refer emergency cases to the city hospital.
- Absence of trained personnel to guide the community on family planning, measures of prevention of diseases, and hygiene, health environment, polio prevention and AIDs etc.

Therefore there is an immediate need to prepare health work forces, who can assist, provide appropriate care/ service to the community in the rural sectors, hospitals, nursing homes and health clubs etc. These skilled personnels, at least one from each village/mohalla will be trained through this Vocational Training Programme-Jan Swasthya Rakshak (Community Health Worker) Scheme. These trained persons shall work in the

community as a multitasking health worker they shall work as facilitators for creating health awarness, knowledge of healthy environment, health and hygience, first aid, prevention of diseases and provide appropriate treatment in emergency situations.

Thus, it is expected, that all these gaps can be filled through the trained health workers under this programme.

OBJECTIVES

After completion of this programme, a trainee should have:

- Basic knowledge on human anatomy and physiology;
- Understanding on health, hygiene and nutrition;
- Knowledge on communicable diseases, life style diseases and common non-communicable diseases including emergency measures and prevention of diseases;
- Practical knowledge on first aid pharmacy and drug reactiion;
- Ability to provide the guidance on maternal and child health care, including family planning and immunization.

JOB OPPORTUNITIES

The programme aims to train and prepare skilled health workers. These trained persons will work in the community as a health workers as well as facilitators for creating health awareness, knowledge of healthy environment, health and hygiene and first aid, and assist in getting appropriate treatment for the patient in emergency situations.

After completing this course, the trainees shall have job opportunities as an assistant/health worker in hospitals, nursing homes, and health centre.

Course Duration: 1 year

Eligibility Criteria: 10th pass

SCHEME OF STUDY

Theory	Practical/Training
40%	60%

Programme	Duration	Essential Contact Hrs	Total Study Hrs
Certificate Course in Community Health	One year	Essential contact hrs for practical including related theoretical instructions/demonstration	400

COURSE CONTENT

Subject-01: Basic Life Sciences

Subject-02: Maternal and Child Health Care (Including family welfare and immunization)

Subject-03: Prevention and Management of Diseases and Emergency

DETAILED SYLLABUS

Subject-1: Basic Life Sciences

Lesson-01: Human Anatomy and Physiology

- Role of human anatomy and physiology
- Our body
- Cell and tissues
- Organization of human body
- Organ and organ system
- Cavities in body
- Brief description of systems
  - Integumentary system
  - Skeletal system
  - Muscular system
  - Respiratory system
  - Digestive system
  - Cardio-vascular or Circulatory system
  - Excretory system
  - Nervous system
  - Glandular system
  - Reproductive system
  - Sense Organs

Lesson-02: Our Body and Immune System

- Immune system
  - Types of immunity
  - Natural immunity
  - Acquired immunity

Lesson-03: Health and Hygiene

- Concept of health
- Factors effecting health
  - Personal hygiene
  - Exercise
  - Rest and sleep
  - Posture
  - Home care and hygiene

Lesson-04: Prevention of Common Diseases and Home Remedies

- Prevention of common disease
- Home remedies for common diseases
  - Major precautions for preparing herbal medicine at home
- General disease that occurs in children and their home remedies
  - Pain in throat
  - Earache
  - Stomachache
  - Fever

Lesson-05: Nutrition

- Our food
  - Functions of food
- Nutrition and nutrients

  - Protein
  - Carbohydrate
  - Fats
  - Minerals
  - Vitamins
  - Water
  - Dietary fibre
- Food groups
- The balance diet
  - Food pyramid
  - Nutritional requirements
- Lack of nutrients

Lesson-06: Yoga and Health

- What is yoga?
  - Importance of yoga
- Asthang yoga
  - Yam
  - Ahimsa – non-violence
  - Satya – truth
  - Asteya – non-stealing
  - Brahmacharya (celibacy)
  - Aparigrah
  - Niyam – rule
  - Sanctity
  - Satisfaction
  - Austerity

- Self-study
- Ishwar pranidhan
- Asana – Postures
- Pranayama
- Pratyahar – Control of senses
- Dharana – Concentration
- Dhyana – Medication
- Samadhi

- Yogasan and initial practices
  - Principles (siddhant) of yogaabhyasa
  - Important yogasanas
  - Surya Namaskar (Sun Salutation)
  - Pranayama and its practice

Lesson-07: Management of Diseases through Yoga

- Yoga and life
  - Principles of yoga therapy
  - Basic principles of yoga therapy
- Therapeutic aspects of yoga
  - Yogic management for respiratory problems
  - Yogic management for digestive disorders
  - Management of high blood pressure and heart diseases
  - Yogic management of back pain
  - Yogic management of cervical spondylitis
  - Management of musculoskeletal disorder gout or arthritis
  - Management of diabetes through yoga
  - Management of anxiety and depression through yoga
  - Yogic practice for ladies

Subject-02: Maternal and Child Health Care

Lesson-01: Pregnancy and Care of Woman in Pregnancy

- Puberty
- Menstrual cycle
  - Ovarian changes
  - Uterine changes
- Physiological changes during pregnancy
- Sign and symptoms of pregnancy
- Routine of woman during pregnancy
- Various investigations of pregnant woman
  - Physical examination
  - Steps of abdominal examination
  - Lab investigation
  - Assessment of risk in pregnancy
  - Prenatal screening
- Care of pregnant woman
  - Nutrition during pregnancy
  - How much work should be done in pregnancy?
  - Rest in pregnancy
  - Exercise in pregnancy
  - Personal hygiene

Lesson-02: Woman's Care during the Perinatal and Postpartum Period

- Labour: An introduction
- Signs of true labour
- Assessment of woman after arrival in the labour room
- Assessment of the status of mother and child during delivery

- Preparation of woman for delivery
- Preparation for delivery
- Third stage of delivery
- Immediate care of the newborn
- Care of the newborn baby
- Breast feeding
- Postpartum care of the mother

Lesson-03: Breast Feeding

- First and foremost milk after delivery (Colostrum)
- Advantages of breast feeding and disadvantages of bottle feeding
- Specific conditions where breast feeding is contraindicated
- Good breast feeding techniques
- Common feeding problems and their prevention

Lesson-04: National Health Programme

- National health programmes
  - National vector borne disease control programme
  - Prevention and control of non-communicable diseases (diabetes, CVD and stroke)
  - Revised national TB control programme (RNTCP)
  - Universal immunization programme
  - Reproductive and child health programme (RCH)
  - National family welfare programme (NFWP)
  - National aids control programme
  - National cancer control programme
  - National iodine deficiency disorder control programme
  - National blindness control programme
  - National programme for prevention and control of deafness

- National leprosy eradication programme
- School health programme
- National rural health mission (NRHM)

Lesson-05: Family Welfare Programme

- Importance of family welfare programmes
- Need for family welfare programmes
- Family planning
  - Temporary methods
  - Permanent methods
- Temporary methods
  - Male condom
  - Female condom
  - Diaphragm
  - Vaginal sponge (available in the form of today)
  - Intra uterine contraceptive device (IUCD)
  - Oral contraceptive pills (Hormonal contraceptives)
  - Subdermal implants
  - Hormonal vaginal ring (Only progesterone ring)
  - Centchroman pill (Saheli)
- Permanent methods (Sterilization)
  - Male sterilization
  - Female sterilization
- Post coital contraceptive (Emergency contraceptive)
- Cafeteria approach
- Birth spacing between two children
- Medical termination of pregnancy (MTP)

Lesson-06: Duties and Responsibilities of the Health Worker

- Duties of the health worker
- Responsibilities of the health worker
  - To make road map of the area
  - Survey of homes
  - Duties and responsibilities of a health worker in prevention of diseases
  - Duties and responsibilities of a health worker in curing the diseases

Subject-03: Prevention and Management of Diseases and Emergency

Lesson-01: Communicable Disease – 1

- Communicable disease
  - Mode of transmission of communicable disease
- Control of communicable diseases
- Communicable diseases
  - Chicken pox
  - Measles
  - Polio
  - Diarrhoea
  - Cholera
  - Pneumonia
  - Tetanus
  - Rabies
  - Fever in communicable diseases

Lesson-02: Communicable Disease – 2

- Parasitic diseases
  - Dengue
  - Malaria

- Leprosy
- Tuberculosis
- Diptheria
- Pneumonia
- Food poisoning
- Venereal infection
  - Syphilis
  - Gonorrhea
  - Aids
- Some parasitic infections
  - Amoebiasis
  - Hook worm (Encylostoma duodenale) infestation
  - Ascariasis (Round worm)

Lesson-03: Preventive Measures

- Origin of disease – it's root cause and associated causes
- Causes of origin of disease and it's control
  - Active immunization
  - Passive immunization
  - National immunization schedule
  - Prevention by chemo-prophylaxis
  - Protective mask
- Different routes of transmission of infection
- Direct contact route
- Prevention of diseases in the hospital
- Food supplementation
- Rehabilitation

- Prevention of diseases
- Personal hygiene
- Quarantine

Lesson-04: First Aid

- General and necessary information
- Emergency conditions
  - Shock
  - Electric shock
  - Hypothermia
  - Chill-blens or frostbite
  - Anaphylaxis
  - Foreign body in trachea
  - Dog bite
  - Earache
  - Foreign body in the ear
  - Bleeding from wound
  - Foreign body in the nose
  - Bleeding from the nose
  - Internal haemorrhage
- Bandages

Lesson-05: Life Style Diseases

- Coronary heart disease
- Hypertension
- Paralysis (stroke)
- Diabetes
- Obesity
- Cancer

Lesson-06: Drug and Drug Reactions

- What is pharmacy?
- Antiseptic and disinfectant
- Drug reactions
- The drugs and materials to be present with health worker

Lesson-07: Emergency and its Management

- Emergencies conditions
  - Drowning
  - Heat stroke/Sun stroke
  - Burning
  - Snake bite
  - Fever
  - Convulsions
  - Abdominal pain
  - Head injury
  - Fracture
  - Poisoning
  - Care of a paralysed patient

EVALUATION AND EXAMINATION SCHEME

Paper	Theory			Practical			Total
	External Assessment		Internal Assessment	External Assessment		Internal Assessment	
	Max. Marks	Time (Hrs)	Max. Marks	Max. Marks	Time (Hrs)	Max. Marks	Max. Marks
Basic Life Sciences	70	3	10	100	4	20	200
Maternal and Child Health Care	70	3	10	100	4	20	200
Prevention and Management of Diseases and Emergency	70	3	10	100	4	20	200

PASSING CRITERIA

S.No.	Subject for the trade test	Max. Marks in Theory	Minimum % required for passing	Minimum marks required for passing
1.	Theory (including Internal Assessment) (Internal Assessment–30)	(70 +10) × 3 = 240 (Written Test Paper –210)	40%	96
2.	Practical (Including Internal Assessment) Internal Assessment–60)	(100 + 20) × 3 = 360 (Practical Test –300)	60%	216

Note:
- In theory, a trainee should secure 40% marks in aggregate including Internal Assessment.
- In practical a trainee should secure 60% marks in aggregate including Internal Assessment.

PROCEDURE FOR INTERNAL CONTINUOUS ASSESSMENT

Theory

3 Tests of 10 marks each to be conducted after every 45 days — Total Marks = 30

Practical/Training (Internal Assignments)

Assessment will be done by maintaining progress card of each candidate, indicating assessment of each practical/experiments. — Total Marks = 60

Course Fee: As per prospectus

CONTENTS

Notes

1

COMMUNICABLE DISEASE – 1

So far, you have read about the topics related to basic biology and care of mother and child health in the last two modules.

Now in this module we will discuss about the prevention and management of diseases and emergency.

All living beings suffer from diseases but have you ever noticed that different diseases occur at different times. Such as cholera, diarrhea, polio, dengue, malaria etc. occur in summer and rainy season. Diseases also spread from our home and surrounding dirt. Control of these diseases is very important, otherwise it can take the form of epidemic. In this lesson, we will study what the communicable diseases are, their types and what are other contributory factors leading them to spread. Apart from this, in this lesson, we will also learn about the prevention of these diseases.

OBJECTIVES

After reading this lesson, you will be able to:

- explain about communicable diseases and their transmission;
- identify major communicable diseases;
- describe their treatment and prevention measures;
- mention the related programmes runned by government and their benefits.

Notes

1.1 COMMUNICABLE DISEASE

Have you ever noticed that some people in the city or around you are suffering from the same type of disease in certain time/season. These diseases are called communicable diseases. These are also known as infectious diseases.

Fig. 1.1: Bacteria of communicable disease

Communicable diseases are those diseases which spread by transmission of a pathogen from an infected person to another. These organisms are not visible through naked eyes and spreads through air, water, food and mutual contact. Other than this, other diseases are called non-communicable diseases.

1.1.1 Mode of Transmission of Communicable Disease

Communicable diseases spread through various ways. Their ways and the names of some common diseases are given below:

1. **Contact Diseases**: These are those diseases that spread through skin contact, clothes contact or sexual contact. Sexual Diseases are – Syphilis, Gonorrhoea, AIDS etc. Other diseases are – Leprosy, Scurvy, Chicken pox etc.

2. **Air-borne Diseases**: Many infections spreads through breath and mouth from one person to another. For example – T.B., Measles, Cough-cold, Diphtheria etc. Sometimes these lead to form of epidemic such as Influenza etc. such viruses or bacteria come out with the breath of the person and the other person gets infection in the body through the nose or mouth.

3. **Water borne Diseases**: There are many infectious diseases that spread from one person to another by contaminated water. Keep in mind that in this those diseases are not included that are produced by water soluble toxic chemicals. Many of these diseases are confined to the local level but sometimes they also take the form of epidemic: such as – Cholera, Typhoid, Diarrhoea (loose motions), Polio, Hepatitis-A etc.

4. **Soil-borne Diseases**: Diseases that spread through soil – when a person comes in contact with contaminated soil through hands or feet, the parasites or bacteria present in it enter his body. For example Round worm, Hook worm etc. These organisms are present in the soil in active or spore form.

5. **Vector-borne Diseases**: There are many diseases in which infections are caused by animals and insects. The bacteria flourish within them and later cause infection in the person. Some diseases also spread in humans through animal bites. Such as:

   (i) **Rabies:** This spreads through the bite of infected dog, cat and monkey.

   (ii) **Plague:** This spreads in human through rats.

6. **Food Borne Diseases:** The food products which are contaminated by bacteria or parasites when eaten by person then these are transmitted to his body causing infections. For example – Amoebiasis, Food poisoning, Tape-worm infection (spreads through eating infected flesh of animals).

7. **Insect Borne Diseases:** Many diseases spread through flies and insects. Such as – Filaria, Malaria, Diarrhoea, Dengue, Chikungunya etc.

1.1.2 Causes and assumptions of infectious diseases

To understand this assume three things:

(i) **The micro-organisms causing diseases**: This mainly includes micro-organisms viruses, bacteria and parasites. These bacteria do not have the ability to spread themselves. They require medium, where they multiply and find shelter to spread to others. If they do not find the appropriate medium, these micro-organisms are either destroyed or remain silent unless they find a favourable environment.

(ii) **Vector**: There are many vectors which help micro-organism to spread such as – air, water, mosquito, flies, animal- bird etc. Among these, some of them works as reservoir for them and in some these micro-organisms multiply themselves and take infectious form, others spread only from one person to another.

Notes

(iii) **Environment:** Many micro-organisms spread rapidly in summer – rainy season, while some in winters. The months of the year are differently favourable or unfavourable for various micro-organisms. We will explain this in detail in varied chapters on diseases.

1.2 CONTROL OF COMMUNICABLE DISEASES

There are many ways of controlling these communicable diseases, but the basic principle is that to interrupt the transmission by knowing them, so that their growth and proliferation could stop. Let's learn about the methods and understand the meaning of some key words related to it:

Carriers: These are the patients who appear to be healthy. They do not show any symptoms of the diseases but the pathogens are present within them. They are capable of transmitting to other. They need to be identified. Otherwise it becomes difficult to control the disease.

Immunity: Immunity is different in every person. Some people are very sensitive to pathogens. They have high risk of infection. Some people are less sensitive and they are less prone to infections. This depends on many factors such as our dietary habits, immune system, genetic factors etc.

Source: Disease infected persons are the main source of infection as its through them disease spreads to their relatives, neighbours, village and outside the village.

Isolation: To keep the infected person away from the contact of other person until the infection is cured is called isolation.

Identification of source: First of all we have to make proper diagnosis of the person with the help of physician and proper investigations. Do the treatment and isolation accordingly. Identify other people suffering from the same disease in that area and provide them medical treatment in the isolated ward of the hospital.

Other sources spreading diseases: Other sources such as polluted water, air, mosquitoes, and flies, measures also needs to be controlled.

Duty of Health Worker

It is the duty of a health worker to identify infectious diseases around her/him based on her/his knowledge, experience and treat them according to the doctor's advice and provide a list of its source, preventive measures and specified treatment to the people of the village and encourage them to duly

properly follow it and he/she should also follow received instructions. Make aware community about it and give information about available resources. If any new disease is known then also convey its immediate information to his/her nearest institute.

Health worker should tell the people about infections disease spreading around us and diseases which can spread? How they spread and what are the contributory factors? How they can be prevented and what is their treatment? What should be our life style, diet changes for their prevention. When and where to get vaccination? What are the treatments and where are they available? Measures of mosquito–flies eradication etc. and how the information about running national programmes related to them can reach to the common man; all these works have to be done by our health workers.

What Our Community Health Worker should Not Do?

1. Do not start treatment without permission or prior information.
2. Do not tell people about the methods of prevention and treatment that have not been taught to prevent people from being misguided and confused.
3. The worker should be in touch with his nearest physician /doctor. Give him/her every information and follow their advice. The health worker should not encourage exorcism and black magic etc. and if such a thing comes up then discourage it.

INTEXT QUESTION 1.1

1. Tuberculosis spreads through ..... medium from person to another
2. Dengue spreads through .....
3. Syphilis is a ..... disease
4. Jaundice is a disease which spread through .....
5. In every person ..... is different

1.3 COMMUNICABLE DISEASES

1.3.1 Chicken Pox

It is a seasonal viral disease and it often spreads from April to September. Though it can happen at any age but people up to the age of 10 years are affected more. In the village, people usually call it small pox which is wrong. Chechak is called as small pox which was eradicated in 1971. Chicken pox is caused by virus called Varicella zoster which is self-limiting disease.

Fig. 1.2: Chicken Pox

Signs and Symptoms

1. Patient feels cough-cold with fever, chills and bodyache.
2. The rashes start to appear on body with fever.
3. The rashes are more on abdomen, chest and back but these can appear on legs, hands and face. Itching can be severe.
4. The rashes appear together, which is its characteristic.
5. There are scars on the skin which gradually fade away and almost disappear.

On average this disease lasts for 17 days, though can vary between 7-21 days.

Diagnosis

1. For the accurate diagnosis virus present inside the fluid of rash is studied by electron- microscope.

2. Study of types of virus etc. is done after culture of this virus in appropriate medium

Complications

Though it is self-limiting disease but sometimes complications occur which sometimes can even cause death in children:

1. Hemorrhage or abortion can occur, if mother gets infected during pregnancy.
2. Congenital deformities can arise in fetus through infected mother.
3. Due to secondary infection pneumonia or enteritis can occur in the baby that can be treated but sometimes death can occur in case of absence of treatment.

Treatment

1. This disease can get cured on time by giving vaccination and proper immunoglobulins.
2. To prevent from secondary infection prophylactic antibiotics are given.
3. Its information should be given to concerned physicians and monitoring of patient's relatives should also be done.
4. People should be told about this and even information of vaccination and its other complications should also be provided.
5. The expected precautions should also be followed by self and people should also be informed about the same.

Some Other Things to Know

1. This disease is not very fatal but if precaution is not taken there, then it can spread rapidly.
2. Complications should be monitored and treated immediately with the help of the doctor.
3. This disease often occurs once in lifetime but sometimes it re-occurs.
4. Its vaccination is available. It must be recommend to vaccinate children on time.

Notes

What Not To Do?

1. Do not advise infected people to stay with uninfected people.
2. Doctor's advice must be taken before treatment.
3. Do not neglect vaccination.
4. Doctor should identify chicken pox borne complications and do not neglect the treatment.
5. In case of no secondary infection do not give higher dose of antibiotics.

Role of Health Worker

- To identify chicken pox cases.
- To encourage them to go to the doctor.
- To tell them about control of this disease to other people of the house.
- To inform higher authorities.
- To not to promote exorcism.

1.3.2. Measles

This is a very common disease in children. This disease is mostly seen in developing and densely populated areas. It is caused by viral infection and spreads through air i.e. breathing.

Measles virus is transmitted through saliva, breathing etc. and remains in our respiratory tract.

Signs and Symptoms

1. High fever, cold, cough with watery red eyes.
2. Vomiting and diarrhea (loose motion) can also occur.
3. There are fine red spots on the entire body which together appear as rash.
4. These spots appear more behind the ear, neck and face and less on other parts.

Few things to Know About Measles

1. It is dangerous disease and complications related to it makes it more dangerous.
2. Reoccurrence is very less.
3. This usually occurs after 6 months and before 5 years of age. Infants who are on breast feed remain safe because of antibodies found in mother's milk.
4. This occurs equally in boys and girls.
5. Children with malnutrition are more prone to it and its complications.
6. This causes malnutrition in children.
7. It often spreads during the winter season.
8. It often occurs in densely populated area, slums, village area etc.
9. It is more prone in poor and illiterate people.
10. Its vaccination is included in government immunization programme.
11. After 4 days of infection, spots appear and remain infective till 5 days and can spread easily.

Complications due to Measles

1. Pneumonia – (mostj common)
2. Malnutrition
3. Diarrhoea
4. Respiratory Problems

Treatment

1. It is a viral disease and there is no role of antibiotic in it. But to protect from its complication, prophylactically broad spectrum antibiotics are given and monitor its future complications.
2. Paracetamol is given for fever.
3. Diarrhoea, Pneumonia are treated as per doctor's advice.

Notes

Role of the Health Worker

1. Monitor the area where the disease is spread.
2. How many people got affected – their age wise list. Immediately inform to related institute of that area.
3. Educate common man about its prevention and complications.
4. Send patient to qualified doctor or institute on time.

What Health Worker should not do?

1. Do not advise to keep infected children with healthy children.
2. Do not try him/her self to treat complications.
3. Do not take complications lightly and make arrangements to deliver to the doctor as soon as possible.

Method of Prevention

1. Protect children from malnutrition and advise to provide proper nutritional diet to pregnant/lactating mothers.
2. Must give measles vaccine to the children completing 9 months after birth.
3. Treat the patient in isolation.
4. Inform the regional health officers as soon as possible.
5. Explain the disease to the people.

Measles Vaccination

1. This is given at the age of 9 months. Before that children get immunity from mother's milk
2. If the epidemic is wide spread then children should be vaccinated early.
3. Keep the vaccine in first upper box of refrigerator and maintain cold chain.
4. Use immediately after opening it.
5. Use within 6 months of manufacturing date.
6. Dose of 0.5 ml of vaccine is given in the muscles.

1.3.3 Polio

You must have seen in your surroundings a child or a person who is not able to walk properly and would have heard from elders that its polio. This disease occurs in childhood. In this sometimes legs get paralysed. It is a viral disease and transmitted though the intestinal route. This virus affects nerves and muscles of the infected person. Only children up to the age of five are mainly affected from it. Elder children are less affected from it.

Virus Transmission

Polio virus enters the children's body through mouth and after reaching in small intestine, via blood to the nervous systems. This virus is present in secretion of nose and mouth saliva and in faeces. Polluted water is also a source of this virus. Virus can be destroyed through chemicals and other physical methods.

Some things to know about Polio

1. It mainly spreads in rainy season i.e. June-July-August-September.
2. It quickly spreads in unhygienic and densely populated area.
3. It mainly affects children.
4. Males are more affected than females.
5. Polluted water, food and flies contributes in spreading.
6. Avoid giving injection in muscle of polio affected children.
7. The ability in mother's milk to save children from polio to a great extent remains up to 6 months.
8. Its effect remains up to 7 to 14 days after infection.
9. The polio eradication programme is running all over the world. From the last 2-3 years, India has not reported any new cases of polio.

Signs and Symptoms

1. Its early sign is fever with cough and cold.
2. In some people itching and stiffness in neck and back are seen.
3. Muscle of affected part stops working – but sensations remain intact in it and get paralysed.

Notes

4. If central nervous system gets affected then there is deformity in face and problem in swallowing of food and drinks.
5. Occasionally respiratory muscles get affected due to which affected child is not able to breathe and eventually dies.
6. Many times polio infection with cough-cold and fever gets cured on its own without any effect.

Diagnosis

1. Wasting and weakness of muscles and disability with the other symptoms of the disease.
2. Cerebrospinal fluid (CSF) investigation gets having increased ratio of protein.
3. Culture of stool and CSF is done to confirm the type of virus.
4. Suffering from fever.

Treatment

1. Admitting the affected child immediately should start the treatment in isolation ward.
2. Affected part can be improved to some extent through physiotherapy.
3. By polio correction surgery deformed parts can be made usable to the patients to some extent.

Prevention

1. With the help of Oral Polio Vaccine (OPV) we are trying to overcome it. It is a very effective vaccine through which we can eradicate polio by giving two drops orally. This vaccine is given to the children of 0-5 years at the interval of 1 month for three consecutive months. In Universal Immunisation Programme after three doses booster dose is given in 18-24 months.
2. **Pulse Polio Programme:** Apart from universal programme extra dose is given to the children in door to door campaign from time to time. In this cold chain of polio drops is maintained till it reaches to the children from the company.

Cold Chain System

1. It is a series of temperature controlled supply of vaccine.
2. In this by maintaining given temperature of vaccine, storage and transportation activities are done.
3. Polio vaccination is done on a dense level after thorough investigation even in the vicinity of suspected case.
4. By ensuring clean water supply and promoting protection of food from flies, we are keeping this disease away.
5. By preventing defecation in open and use of toilets we can get rid of polio as well as many other diseases. Luckily no new case has been reported from last few years. Our government together with WHO and UNICEF is determined to eradicate it from all over the world. Let's join hands to make this great mission successful.

Role of Health Worker

1. To ensure to give polio drops to the children up to the age of 5 years present in your area on time.
2. To find out in homes that polio drops has been received or not and inform concerned officers by spotting suspected case of polio.
3. To explain community about polio and its prevention.
4. To encourage vaccination by telling polio disability to the child's mother.
5. To help in promoting and making the pulse polio event successful.
6. To explain about cleanliness mission from door to door and motivate to construct toilet in every household.

What Health Worker should not do?

1. Never give injection in muscle of affected child.
2. Inform polio office if there is suspicion that child is affected from polio. Do not start any other treatment.
3. Do not encourage exorcism, black magic instead discourage them.
4. Health worker should not try to start any treatment.

INTEXT QUESTION 1.2

Match the following:

(A)		(B)
1.	Chicken Pox	(i) Transmission of virus through saliva and breathing
2.	Measles	(ii) Temperature control system of vaccine
3.	Polio	(iv) Rashes on abdomen, chest and back with fever
4.	Cold Chain	(iv) Nervous system affected

1.3.4 Diarrhoea

Diarrhoea is a very common disease. It catch up quickly among small children as digestive system of children is weak. If it is not treated death can occur.

Frequent occurrence of loose and water like stool is knows as diarrhoea or loose motions. If mucus or blood also comes along with that, it is called dysentery. If it has occurred abruptly it is called acute and if has been from many days and gradually developed it is called chronic diarrhea. This causes dehydration in the body due to which person may die especially children as a result of its complications. If diarrhea is associated with vomiting also then severity increases. **Dehydration means – Deficiency of water in the body**.

Causes

Many types of viruses, bacteria, parasites and toxic materials are the main factors of diarrhoea. It often occurs and spreads through polluted water, food, stale food or eating with dirty hands.

Some names of viruses, bacteria and parasites which causes diarrhoea are given below:

1. Bacteria: Salmonella, Shizella, Vibrio cholerae, E. coli, Clostridia etc.
2. Virus: Rota virus, Corona virus etc. mainly in children.
3. Parasites: Entamoeba histolytica, Giardia lamblia etc.
4. By feeding milk from bottle in unclean and unsafe manner.
5. Flies are the main vehicles of it. They sit on filth dirt and then pollute food and water.

Some Facts to know

1. Diarrhoea spreads more in summer and rainy season as temperature is favourable for bacteria to grow at this time.
2. There is high risk of contamination of stored water due to reduction in supply of drinking water.
3. This disease can occur due to lack in personal and domestic hygiene and exposure of food to dust and flies.
4. This disease often occurs in children but adult are also get affected often.
5. Bottle-fed children often fall prey to it.
6. People of low socio-economic background are often vulnerable to this disease.
7. Malnutrition is also responsible for diarrhoea and malnutrition also occurs due to diarrhoea.
8. Patient should avoid oily-fried items, ghee, butter, raw fruits and vegetables.
9. Always start treatment with ORS.
10. Diarrhoea spreads mostly though non-cleanliness.

Dehydration

Due to deficiency of water and electrolyte following symptoms manifest in the person:

1. Dryness of mouth, excessive thirst.
2. Increase in heart beat rate.
3. Sunken eyes and lack of tears in them.
4. Pressure increases in soft part of forehead (anterior fontanelle) in infants.
5. Decrease in elasticity of skin – wrinkles appear.
6. Fever can occur and urine output decreases and this is the symptom of serious condition. In such cases kidney failure can occur. Immediately contact the doctor.

Treatment

1. Rehydration therapy is given along with medication.
2. In mild dehydration lentil soup, coconut water, lemon water and to infant mother's milk should be given.
3. In moderate dehydration tea, rice water, salt-sugar solution or ORS should be given in proper quantity as required.
4. In severe dehydration when urine output is reduced then according to physician's advice intravenous fluid therapy is given immediately which can recovers deficiency of water and electrolyte as soon as possible.

Prevention

1. While preparing, storing and eating food cleanliness and hygiene should be maintained properly- cook food by covering, do not keep food uncovered, eat only after washing hands, eat fresh food, no flies in surrounding. All these things should be kept in mind.
2. For defecation go to the toilet only, if outside (in the open), cover it with soil.
3. Wash hand properly with soap and water after defecation.
4. Purification and chlorination of water and ice is essential.
5. Maintain proper drainage of water near the hand pump, taps and wells.

Fig. 1.3: Proper drainage of water near the hand pump, taps and wells

6. Avoid that food which is kept in open, stale or sold by hawkers because these are polluted by flies, worms and dust.
7. Educate people – what is diarrhoea, how it spreads and how can it be avoided.
8. At restaurants and public banquets cleaning should be monitored periodically.
9. Pay proper attention to personal and environmental hygiene

Role of Health Workers

1. Encourage breast feeding if child is taking mother's feed.
2. Explain the use of ORS and its benefits. Explain home recipes of diet to the patients and his family.

Fig. 1.4: Feeding child with ORS

3. Explain origin and spread of flies and methods of control of its entry into the house
4. Discourage defecation in open and encourage construction of toilet with government aid.
5. Encourage cleanliness and destroy rotten food.
6. Give stress on availability of pure drinking water.
7. Apply the cleanliness campaign of the government to the village completely and explain the benefits of cleanliness.

Health Worker should not Do

1. Do not treat themselves serious patients of diarrhoea especially in whom urine output is reduced. Rather arrange transportation to proper doctor or hospital.
2. Do not ignore need for clean drinking water and personal hygiene.
3. Do not advise to eat chat-pakoda and uncovered items in the market.

1.3.5 Cholera

Due to increase in health awareness and immunization there is decrease in patients of cholera. It is a very dangerous disease. It is caused by bacteria called Vibrio cholerae. This bacteria grows inside the small intestine of the person and releases exotoxin. This exotoxin affects nervous system and watery like loose motions occur. Even vomiting occurs and patient becomes victim of severe dehydrations rapidly. Patient can even die if proper rehydration and treatment is not given on time.

Causes

1. Its main cause is a bacteria called Vibrio cholorae that reach our intestines through contaminated water or food.
2. It spreads rapidly through exposure to rainy flies, dirty, rotten material and open chopped fruits.
3. Uneducated people with low economic social status are often victim of it.
4. It spreads more in rainy season.

Fig. 1.5: Causes of cholera spreading

Some facts to know about Cholera

1. It spreads rapidly in the rainy season.
2. Flies are its main carrier.
3. Cut fruits sold in the open and already prepared juice of sugar cane and fruits are contributor in its spreading.
4. Exotoxin released by bacteria is a very harmful. It affects intestines and drain body fluid. It causes rice water like loose motions due to which patient develops dehydration, vomiting and unconsciousness.
5. It grows rapidly in open stool and dirty waste heap.

Symptoms

1. Frequent diarrhoea similar to thin rice water on its own.
2. Vomiting and excessive thirst.
3. Abdominal pain with spasm, sunken eyes and loss of skin elasticity (wrinkles seen)
4. Dry tongue.
5. Breathlessness.
6. Reduced urine output and prolonged illness leads to kidney failure and even heart failure and death.

Diagnosis

1. Rice water like stool is the best diagnosis.
2. Fast but feeble weak heart rate and low blood pressure.
3. Presence of Vibrio cholerae in stool investigation and estimation of its exotoxin.

Treatment

- Take the patient to the doctor for first aid.
- Appropriate disposal of patient's stool and Vomit.
- Take special care of cleanliness.
- Intake of ORS.
- Use of green coconut water, lemon water, rice water etc.

Notes

Role of Health Worker

- Survey the area to find out the number of cases of cholera.
- Update health officer about number of cholera patients in the village.
- Provide health education on rehydration therapy to mass community.
- Educate about cleanliness.
- Distribution of chlorine tablets for purification of water.
- To stop defecation in open and explain its harmful effects.
- Encourage community to build toilets.

INTEXT QUESTIONS 1.3

Mark Right (√) or Wrong (×):

1. Cholera spreads from polluted air. ( )
2. It is necessary to wash hands before preparing the food. ( )
3. Use ORS in Cholera. ( )
4. Diarrhoea often leads to dehydration. ( )
5. Patient suffering from severe diarrhoea should be taken to the doctor.( )

1.3.6 Pneumonia

Pneumonia disease is caused by the bacteria called streptococcus *Pneumoniae pneumococcus*. In this children's lungs are affected due to which children experience difficulty in breathing. If it is not treated properly at right time then often children may even die. Its treatment should be done under the supervision of an expert physician.

Some facts about Pneumonia

1. It is caused by the bacteria called streptococcus *Pneumoniae pneumococcus*.
2. In this fibrin deposits in alveoli of lungs which causes breathlessness in children.
3. This is an airborne infectious disease which spreads from one child to another. Therefore, affected children are kept in isolation.
4. It spreads more rapidly in densely populated areas.
5. Malnourished children become early victim of it.
6. Children from 2 months up to 5 years are more affected by it.

Symptoms

1. Breathlessness in abnormal manner.
2. Cough and fever/running nose (cold).
3. Excessive laziness and sleep and yawning.
4. Cyanosis – lips, nails and fingers turning blue.
5. Due to difficulty in swallowing, child is not able to eat and drink anything.

Treatment

1. Proper broad spectrum antibiotic medicines are given according to doctor's advice.
2. For fever antipyretic medicines like – paracetamol etc. are given.
3. Adequate nutritious diet is given to the children. Food should not be discontinued.
4. Do not stop mother's milk.
5. In severe cases specialist's advice is taken during hospitalization. In such condition even oxygen supply can also be required.

Remember

Delay in treatment, improper treatment or incomplete treatment can even prone fatal.

Prevention Methods

1. Children having mother's milk have lower risk of pneumonia. Mother's milk increases immunity in the child.
2. There are reduced risk of pneumonia if we live away from densely populated and polluted areas.
3. Children taking balanced diet become less victims of pneumonia.
4. Explain the ladies about pneumonia and other basic health issues.
5. In cold weather cover children with warm clothing.

1.3.7 Tetanus

Tetanus is a fatal disease caused by bacillus bacteria. It used to be in abundance till a few decades ago. So far, due to intensive immunization, cases have lowered in number. In India it is known as "Dhanush Aakar". It is caused by bacteria called *Clostridium tetani*. Till a few decades ago our infectious disease hospitals used to be filled up with tetanus patients. Fortunately this is not the situation now.

Notes

How does Tetanus occur?

Spores of bacteria called *Clostridium tetani* live in dirty places. The infection is acuired by contamination of wounds with tetanus spores. The bacteria lies in the form of spores in the soil and on getting favourable conditions it revives and starts growing.

Symptoms

The exotoxins released by the bacteria affects nervous system of the affected person. Consequently, there is acute pain and the person gets bowed due to spasm in the spine. Its intensity gradually becomes so sharp that the affected person starts to look bended like a bow. The jaw of a person also becomes stiff, skewed and person is unable to speak anything. But till the last moment the person's consciousness is not lost and he is fully conscious. Despite the whole treatment, the disease is fatal. The risk of tetanus is higher in infants. This is called tetanus neonatorum. Especially in home deliveries where cleanliness and aseptic conditions are not maintained. This infection transmits to the child through the umbilical cord.

Preventive Measures

Through injection of tetanus toxoid (TT) we can prevent Tetanus to a great extent. This is a powerful but safe active vaccines. Its two doses are given in healthy person's muscles at a interval of one month. Then its booster dose is given every five years. If first child is there then two, otherwise one dose of tetanus toxoid is given to the pregnant women. The risk of tetanus neonatorum in infants becomes low from this.

Some Facts to know about Tetanus

1. Tetanus patient remains fully conscious till the end while his nervous system stops working.
2. Keeping the patient in full darkness the tetanus fit comes less while in light or noise fit are more.
3. The sooner the patient gets the treatment, more likely the recovery is. But recovery does not occur when delayed.
4. Fortunately, patients of tetanus are almost non-existent and this is possible due to intensive vaccination campaign.
5. Vaccine given to mother during pregnancy also produces immunity in the child that we boost with the dose of DPT.
6. Spores of tetanus can be found in dirty places but there is nothing to do with dung, soil or rust. These rumors being spread in the village are not true.

Role of the Health Worker

1. Health worker should explain about the tetanus and its fatal risk to the people.
2. Explain about its vaccination and vaccinate the infected person.
3. Explain the benefits of TT vaccine given during pregnancy.
4. Advise antiseptic dressing on wounds or on cuts.

What not to do?

1. Do not treat in the home when tetanus is detected, neither by antibiotic nor with any other treatment.
2. Do not advise people exorcism even if there is a suspicion of tetanus.
3. Do not discourage for TT vaccine in pregnancy.
4. As now the number of tetanus patients have decreased greatly even then do not discourage immunization.
5. Safe delivery with clean, antiseptic and sterilized equipment should be done only by proper competent experienced doctor/nurse.
6. Do not re-use used needles and syringes.

1.3.8 Rabies

It is a disease caused by virus which is transmitted in the human body often through saliva of infected animal bile. It is also called hydrophobia because patient fears from water in it. It is an animal born disease. Apart from dogs, this can also be caused by being bitten by cats, jackal, monkey etc. In developing countries where stray dogs are more, this disease is mostly seen.

Appearance of symptoms depends on the following:

1. How much a dog is infected?
2. The extent of bite wound.
3. Proximity of wound bite to the brain: Here dog means – every animal infected from rabies who has injured the person. Yes, it is certain that the infected animal dies itself within two weeks of biting.

Notes

Symptoms

1. In the beginning there is a complaint of headache and body ache.
2. Followed by fever.
3. Unable to drink water, later on not able to take any fluid due to contraction of muscles.
4. The patient's voice changes.
5. Saliva starts dripping in excess quantity from mouth.

Prevention

1. Vaccination of stray dogs.
2. Do not allow them to enter public places.
3. Vaccinate pet dog also from the veterinary doctor.
4. Educate common man about this.

Role of a Health Worker

1. Arrange all the preventive measures for execution and implementation.
2. Convey information of rabies infected patients or animals to the right centre.
3. Identify the dog without vaccination and get it vaccinated.
4. Take the bitten person immediately to the doctor and treat him according to his advice.

What should not be done?

1. Do not delay the treatment as soon as you learn about the dog bite.
2. Do not forget to ask about dog bites from every unusual behaving patient.
3. Do not discourage the patient by showing fear of death, instead encourage him for the treatment.
4. Do complete treatment as per the advice of the doctor.

1.3.9 Fever in Communicable Diseases

1. **Influenza:** Viral infection, disease occurring in children and elders.
2. **Pneumonia:** Infection due to pneumoniae bacteria.

3. **Diphtheria:** Pain in throat, difficulty in swallowing especially for the children.
4. **Typhoid:** High fever in evening and morning, decrease in heartbeat, abdominal pain, positive widal test, bacterial infection.
5. **Meningitis:** Headache, vomiting and stiffness in the neck.
6. **Tuberculosis:** Bacterial infection, low fever during evening time, more sputum with cough and with this blood comes out (hemoptysis).
7. **Measles:** Rashes on the skin, no effect of any kind of medicine.
8. **Small Pox:** Viral infection
9. **Mumps:** Viral infection
10. **Plague:** Bacterial infection
11. **Severe Follicular Tonsillitis:** Bacterial infection
12. **Influenza:** Viral infection
13. **Cellulitis:** Bacterial infection
14. **Abscess-boil:** Bacterial infection

INTEXT QUESTIONS 1.4

Fill in the Blanks:

1. In ..... disease, fibrin is collected in the lungs.
2. Tetanus disease is also known as .....
3. Not able to drink water is a symptom of ..... disease.
4. To diagnose typhoid disease ..... test is done.

WHAT HAVE YOU LEARNT

In this lesson, you have studied about communicable diseases and its types. You learnt about the contributory factors in the spread of infectious diseases. Along with this you also have understood about the prevention and control of disease. In prevention of various diseases like chicken pox, pneumonia etc. health worker has a very important role. you also got detailed information about this topic.

TERMINAL EXERCISE

1. Define communicable diseases and also write about various factor transmitting diseases.
2. Write causes, symptoms and treatment of measles.
3. Discuss the role of health worker in tetanus disease.
4. Write various symptoms and treatment of dehydration.
5. Write various symptoms and measures of prevention of pneumonia.

ANSWERS TO INTEXT QUESTIONS

1.1

1. Air
2. Mosquito
3. Sexually transmitted
4. Contaminated water
5. Immunity

1.2

1. (iii)
2. (i)
3. (iv)
4. (ii)

1.3

1. Wrong
2. Right
3. Right
4. Right
5. Right

1.4

1. Pneumonia
2. Dhanush Aakar
3. Rabies
4. Widal

2

COMMUNICABLE DISEASE – 2

In the last lesson, we studied about some contagious diseases. In this lesson, we will study other contagious diseases related to parasitic infections which were not covered in the previous lesson. Apart from these, we shall also study about those infections which spreads due to sexual transmission. Some common parasitic infections are – malaria, dengue, hookworm, tapeworm, roundworm, filaria etc. These diseases spread through flies, mosquitoes, contaminated food and through wounds.

Apart from these, many diseases are spread through unsafe sexual relations, i.e., Syphilis, Gonorrhea, Aids and Hepatitis-B.

OBJECTIVES

After studying this lesson, you will be able to:

- learn about different types of diseases caused by bacterial and parasitic infection, their mechanism of spread, treatment and methods of prevention;
- learn about symptoms, treatment and prevention of diseases spread through unsafe sexual relations.

2.1 PARASITIC DISEASES

Let us learn about other communicable parasitic diseases.

2.1.1 Dengue

The dengue virus are spread through the bite of an Aedes species mosquito. Many people die from this disease every year. In Delhi city almost 10,000 people per year

are affected from this disease and besides many efforts, more than 300 people die every year.

Transmission of Dengue – Aedes Mosquito

This mosquito lives and breeds in fresh water. It also breeds easily in water kept in container, tyre, bottle and cooler. The favorable months of spreading is between July to October when possibility of collection of water is maximum in houses and offices. It affects any age group and sex.

Fig. 2.1: Three types of mosquitoes who spreads common disease

Symptoms of Dengue

Based on symptoms, these are divided into 3 types:

1. **Dengue Fever**
   - It appears with symptom of fever in infected person and self subsides within 7 to 10 days.
2. **Dengue Hemorrhagic Syndrome (DHS)**
   - In this condition, bleeding appears from nose, ears, gums, etc. the infected person.

- Platelet count decrease very much in the blood.
- Hepatomegaly (enlarged liver).
- Diminished blood flow.
- Apart from this symptoms like fever is also present.

3. **Dengue Shock Syndrome (DSS)**
   - This is most dangerous stage – Where possibility of death of the patient is very high.
   - Blood Pressure becomes low in these patients.
   - Heart beat becomes weak and also fever is either at high or low grade.

Treatment

- Treatment of dengue should be done carefully.
- Generally, role of antibiotics is not seen.
- Treatment should be done based on onset of symptomatic and physical condition.
- First of all, IV (Intra Venous) line is established and through which I.V fluids is given.

Fig. 2.2: Use of mosquito net

- Paracetamol is given to control fever. Never give Disprin because of antiplatelet effect and it also increases possibility of hemorrhage.

- Patient should be immediately taken for doctor consultation or health care centre for the treatment.
- In hemorrhagic condition, platelets are transfused in order to reduce the loss of the blood.

Measures of Prevention and Control

- Empty the stored water in water tanks, coolers, and waste tires and stop the growth of mosquitoes in them.
- Care to prevent from mosquito bites i.e., by using mosquito net, mosquito repellents chemicals.
- Put chemicals in collected water to prevent growth of mosquito larvae and pupae.
- Remember that these mosquito bites in the morning and evening hours.

Fig. 2.3: Regular cleaning of the cooler

Role of the Health Worker

1. Treat DHS and DSS patients on very urgent basis.
2. Blood transfusion is required if hemorrhage is there. Transfusion of platelets is done if platelet count < 20000
3. Keep the patient cover with foot end elevation.
4. DHS and DSS patients are referred to such centre where ICU facility is available.

What Health Workers should not do

1. Disprin should not be given to such patients.
2. Do not use antibiotics.
3. Do not transfuse blood until not suggested by the doctor.
4. Do not use steroids.

2.1.2 Malaria

At present best medicines are available for malaria and treatment methods are also modified and effective. Like in dengue, malaria is also transmitted by mosquitoes. Even after government efforts on malarial eradication programme at national level; it is still a very big issue in our country.

Some important things about Malaria

1. It spread through anopheles mosquito. Sexual reproduction and development of malaria parasite take place inside female anopheles mosquitoes.
2. One can prevent this disease by controlling spread of mosquitoes and by complete treatment of the patients.

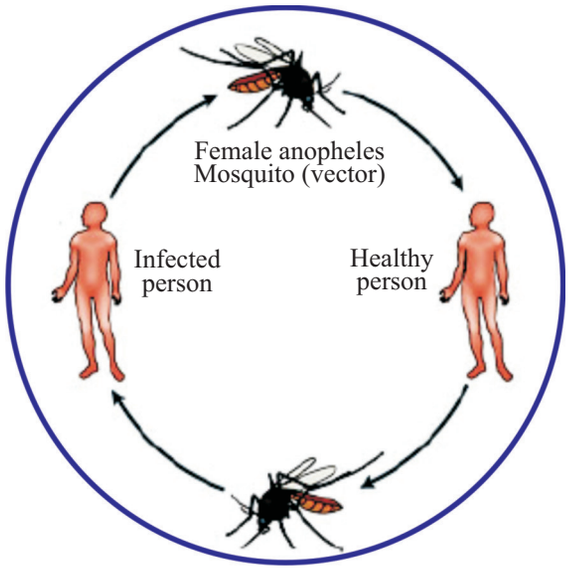


Fig. 2.4: Cycle of infection of malaria

3. Beside chloroquinine and Primaquine, new drugs are available to kill this malarial parasite.

4. Malaria destroys RBC's and thus patients suffer from anemia.
5. It affects our immunity.
6. These Plasmodium release toxins in our body which affects our important organs like liver, brain, kidney etc.
7. Cerebral Malaria is the most dangerous and is mostly caused by P.falciparum.
8. Four varieties of malarial parasites are seen commonly in India:
   (a) Plasmodium Vivax
   (b) Plasmodium Falciparum
   (c) Plasmodium Ovale
   (d) Plasmodium Malariae
9. Mosquitoes of malaria mostly bite in evening hours. So, take necessary precautions for children and old age persons at that time.

Causes of Malaria

1. Plasmodium parasite infects RBC's and release toxins in the body - this is the main cause of Malaria.
2. Plasmodium transfers from one patient to another through female anopheles.

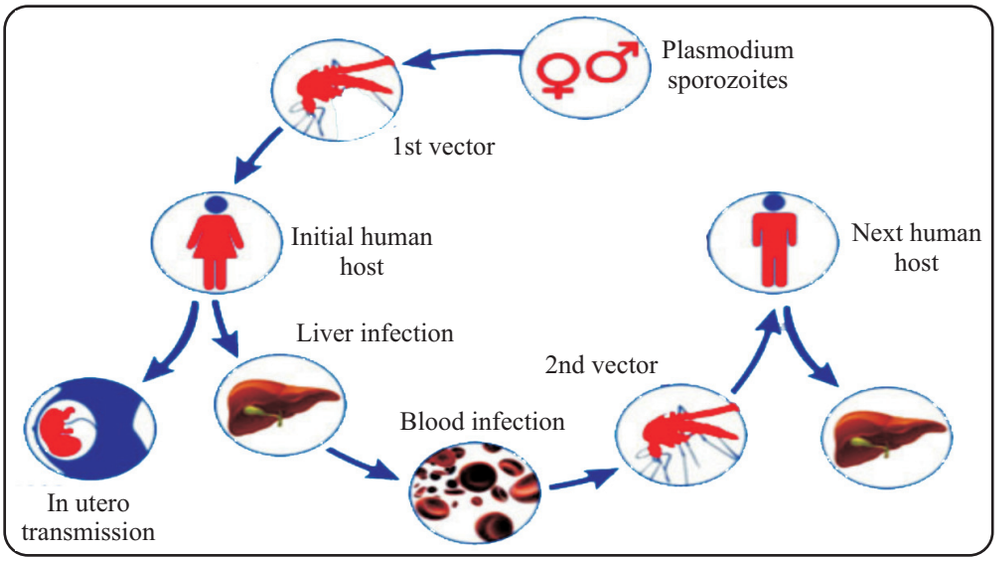


Fig. 2.5: Spread of malaria

Symptoms

1. After infection this parasite destroys RBC's and the following symptoms appears:

   (a) Fever with chills.

   (b) Anemia, general weakness and weight loss.

   (c) Loss of appetite etc. Fever comes at definite intervals.

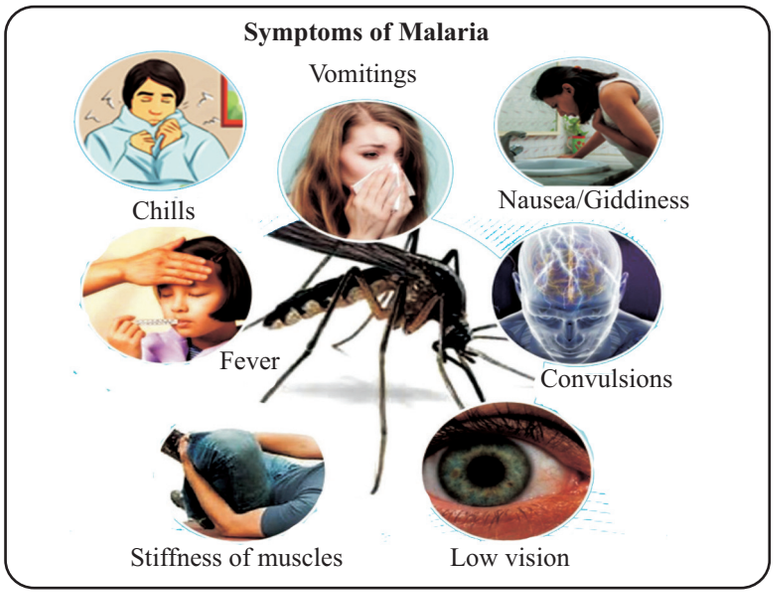


Fig. 2.6: High Fever, chills with rigors

Complications of Malarial Fever

1. Spleen of the infected persons gets enlarged.
2. Hemolysis occurs in the body, which may leads to jaundice.
3. Cerebral malaria – pernicious malaria – malaria reaching brain.
4. Sometimes fluid accumulation swelling is seen in lungs

Prevention

1. In every case of fever, slides should be made at the time of high fever, make the record and send it to concern department.
2. Prevent mosquitoes by use of mosquito nets.

3. Try to get rid of the places where mosquitoes breed by spraying chemicals.
4. Try to get treatment immediately and complete the course of medicine to get cured.

What a Health Worker should do

- Find out the persons who are suffering with fever, and find out diagnosis.
- Make a slide of them and send it to health centers.

Fig. 2.7: Investigation of malaria

- Persons with malaria positive, take them to health centre for proper diagnosis and treatment.
- Find the places where mosquitoes develop and destroy its larvae and pupae
- Use mosquito killer sprays.
- Educate common people regarding malaria

What Health Workers should not do

- Do not start treatment without consulting a doctor and don't give medications (anti-malarial medicines) without advice of the doctor.
- Do not give advice to patients to take irregular course of medicines.
- If any complication arise during the treatment, bring the patient to doctor for immediate treatment and investigation.

Remember

Any fever can be dengue or malaria, its complete treatment and diagnosis is compulsory.

2.2 LEPROSY

Leprosy has been prevailing since ancient times. Due to untreatable condition of the disease and contagious in nature, leprosy patients were boycott from society but now with availability of complete treatment, it is 100% curable. This disease is caused by Mycobacterium leprae and it affects our skin and ligaments.

Important Factors about Leprosy

1. This is 100% curable disease.
2. It spreads very slowly.
3. It affects mainly in crowded areas.
4. It affects mainly lower class community.
5. It can affects any age group and any sex.
6. Patient can get marriage, raise a family and can do daily home tasks
7. Prevent the spread of this disease by taking free treatment available at the health centre

Fig. 2.8: Affected areas in Leprosy

Symptoms

- Reddish spots on the skin and no sweating in that area.
- No pain is felt when pricked with pin or exposed to hot can at that point.

Notes

- No itching or burning sensation be felt in those points.
- Nearby nerves (thickening of ligament) bulges just like ulnar nerve.

Remember

Congenital spots on skin or itching or scaling or white spots – these are not called as Leprosy spots – which is common perception in villages

Apart from these, many complications may develop in patients like –

1. Blisters are formed after scald or wound which may continuously increase in size and it further increases if treatment is not done.
2. Deformity in limbs develops leads to handicap
3. Blister or Ulcer can form in between toes without any injury because loss of sensation occurring due to disease.

Role of Health Worker

1. Health workers should educate the people that disease will not spread through touching
2. Health workers should educate the people that such patients should not be boycotted. This is not incurable disease; rather it is completely curable after treatment.
3. Encourage the patients for treatment and remove phobia of social stigma and anxiety.
4. Send the details of disease/affected patients to concern centre for its eradication.
5. Complicated Case should be send to doctor for diagnosis and treatment.

What Health Worker should not do

1. Do not encourage social stigma and myths.
2. Do not misbehave with leprosy patients and don't neglect their treatment.
3. Do not encourage incomplete treatment during recovery of patient.

2.3 TUBERCULOSIS

This disease is present by various names in world like TB, Rajroga, Tapedik, Yakshma but majority of cases are seen in developing countries. 2-3 lakh people suffer every year from this disease. High spread is found in India as well.

Some Important Measures

1. It affects lower and lower – middle income class community.
2. It spreads quickly in densely populated areas.
3. It gets inflicted fast in HIV and immune-compromised patients.
4. Now days, its treatment is very easy but Multi Drug Resistant (MDR) cases have increased due to high antibody resistance, which is dangerous.
5. Mainly it affects our Lungs but tuberculosis of lymph nodes, bones, intestine, brain (meningeal), etc. are also seen.

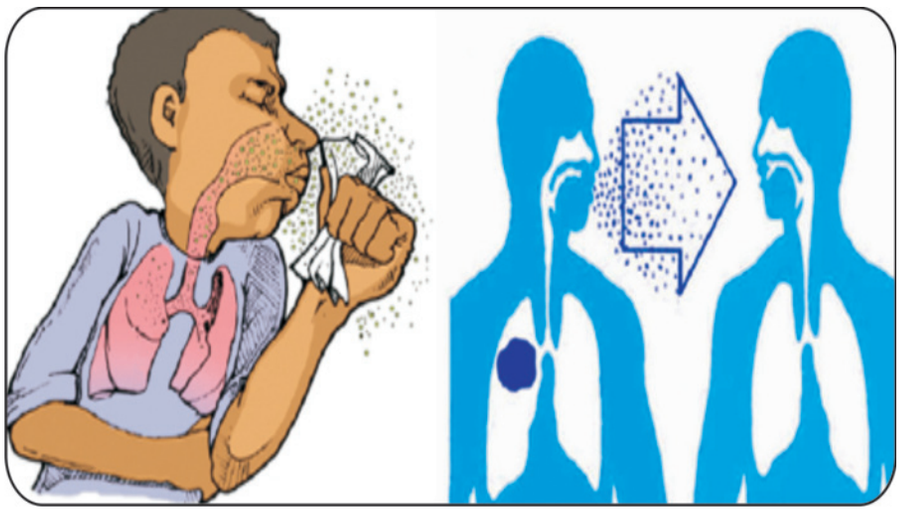


Fig. 2.9: Tuberculosis is air borne spreading disease

6. Government and other organizations run DOTS Programme for TB eradication with positive outcomes but there is also increase in number of patients who quit in middle of the course which is very big obstruction for eradication.
7. It is fully curable after complete course of treatment.

How TB Spreads

This is an air-borne infection. When the TB patient coughs, bacteria get released in the air and when this air is inhaled by other person, it enters into his lungs via respiratory tract and spreads. It is caused by Mycobacterium tuberculi bacteria. Some species of bacteria is found and spread through non-pasteurized milk of cows and buffaloes. It affects persons with weak immunity quickly.

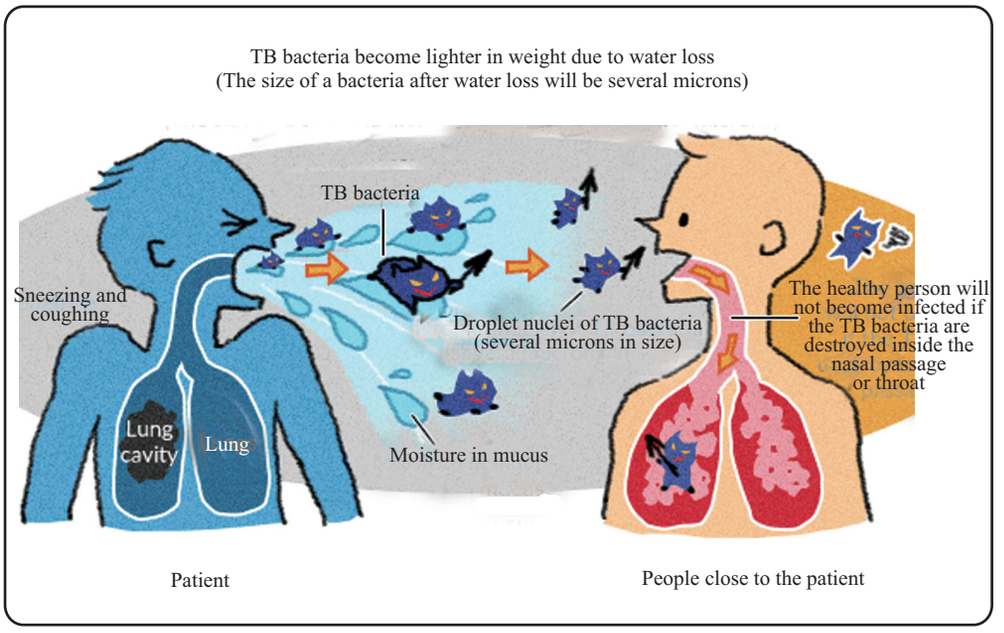


Fig. 2.10(a): Infection of Tuberculosis

Symptoms

1. Tuberculosis of Lungs:

- **Cough:** Cough which persist and lasts for more than 3 weeks.
- **Fever:** Mild grade fever in late evening hours.
- **Hemoptysis:** Blood in cough also occurs.
- Loss of appetite and persistent generalized weakness.

These are all the symptoms of lung tuberculosis –Despite these, affected person may exhibit breathing problem, breathing difficulty due to collection of fluid in lungs, especially symptoms seen in affected areas.

2. Intestinal Tuberculosis

In this, symptoms like – loss of appetite, vomiting, loose motions, constipation, intestinal obstruction and fever are found. Perforation of intestines at many areas can also be found. Exudative fluid is collected in abdomen.

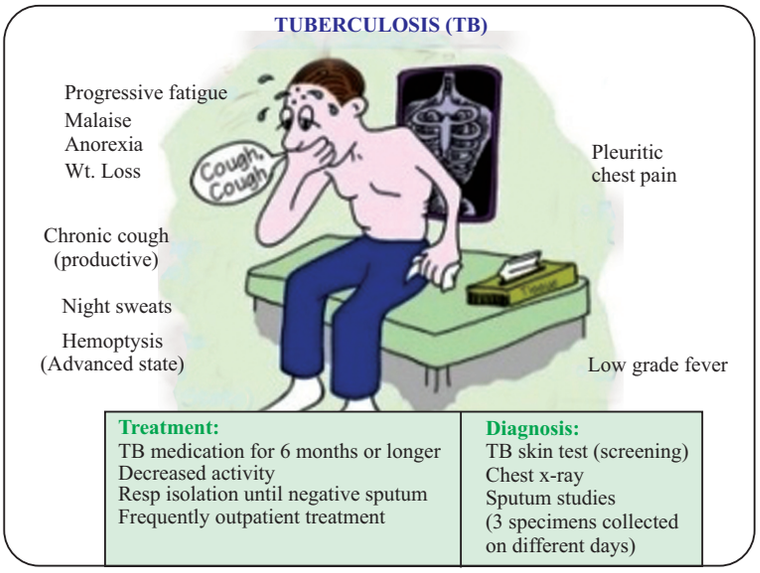


Fig. 2.10(b): Infection and Symptoms

Fig. 2.11: Persistent weight loss in Tuberculosis

3. Tuberculosis of bone and brain

- Affected bone causes bone fracture, which causes Backache, Paraplegia, Convulsions. Symptoms related to brain are present mostly in pressure affected areas.
- TB of Lymph Nodes is found in both adults and children–there is a need for its right diagnosis and treatment. TB also occurs in meninges known as tubercular meningitis and also may occur in uterus which leads to infertility.

Diagnosis

1. Sputum for Acidic Fast Bacillai (AFB) is a confirmatory diagnosis.
2. X-Rays are helpful in TB of bones and chest.
3. CSF Fluid examination and MRI help in Tubercular Meningitis.
4. Tuberculosis of Lymph glands are diagnosed with the help of FNAC.
5. Gene Xpert test is also helpful in diagnosis of TB.
6. Abdominal TB is also diagnosed by Ascitic Fluid Analysis.
7. Clinical assessment is very much important with these investigations.

Treatment

TB is a curable disease. Isolate the patient who have AFB positive in sputum from healthy ones because it is a contagious disease. TB gets treated fully if patient take Anti Tubercular Treatment (ATT) as a complete course. Mostly ATT are taken by oral route – Rifampicin, Isoniazid, Thiacetazone, Ethambutol, Pyrazinamide, but Streptomycin is injectable form and injects by intramuscular route. Patient can take treatment by staying at home but those who have serious problem should get admitted to the hospital. If female have TB in breast, she should breast feed her baby, after consulting her doctor. Treat the children and give BCG Vaccine.

Fig. 2.12: Examination of TB patient

DOTS Technique

Now a days, mostly treatment of patients done by this technique. In the presence of health worker, patient should take medicine for 6 to 8 months daily. During the

entire duration patient should take medicine in front of health worker. The first dose should be taken in the presence of the health worker. Patient can take one of the medicines from these by doctor's advice – Rifampicin, Isoniazid, Ethambutol, Streptomycin.

If the patient does not take medicines regularly, then resistance of drug develops in the body.

Fig. 2.13: Treatment through DOTS

Preventions

1. BCG Vaccination at birth.
2. Patient must keep the mouth cover during coughing and sneezing.
3. If symptoms are seen, then investigate the sputum of patient for AFB for consecutive 3 days.
4. Take treatment for full duration.
5. DOTS medicine should be taken in presence of health worker.
6. Collect and manage stock of ATT Medicines regularly.
7. Monitoring of patient, follow up status should be done.
8. AIDS/HIV screening should be done in all TB patients.
9. Tuberculosis investigation is not significant for tuberculosis. Positive test indicates that the patient is infected from TB. On other side, Negative test does not rule out the possibility of tuberculosis. For correct verification, some other tests should be undertaken.

Role of a Health Worker

Health workers have to follow these points to prevent TB:

1. Encourage all TB patients for HIV examination and counseling.
2. HIV investigation is to be done for TB Patients.
3. Our aim is to encourage DOTS treatment in TB patients and check for HIV as well.
4. Do screening for HIV Diagnosis in all TB patients.
5. Establish TB and HIV/AIDS Samanvaya Samiti at the regional level.

Health worker plays an important role in control of Tuberculosis and patients suffer from HIV/AIDS by national TB eradicative programmes:

1. Give health education to their family members.
2. Educate about primary symptoms of TB and also about the serious consequences to their family members. Make them aware about DOTS centre and precautions for prevention of Tuberculosis.
3. Media plays an important role in making awareness regarding AIDS and TB Programmes
4. NGO's also prove helpful in controlling TB/AIDS in the community.

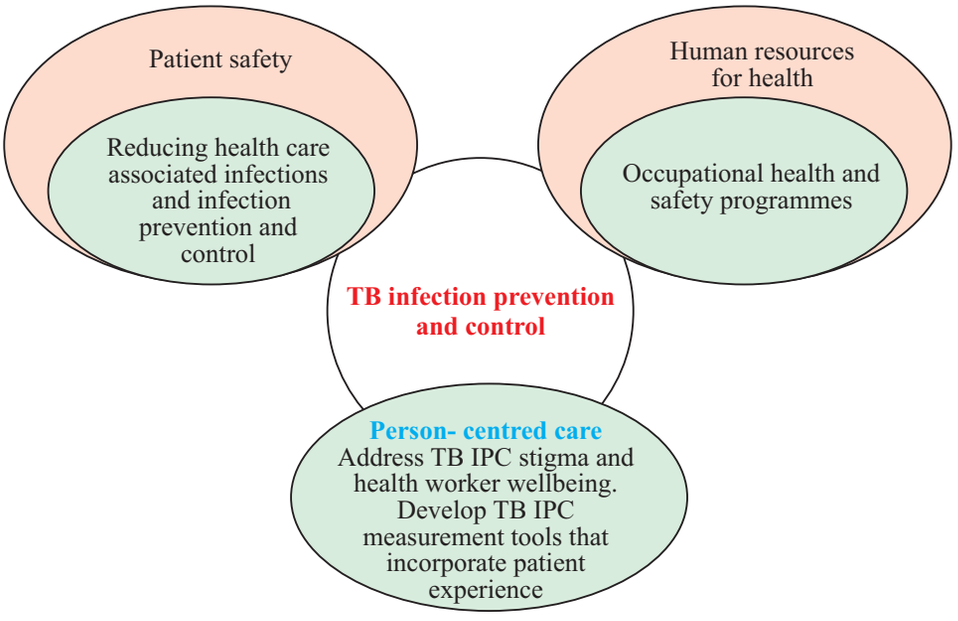


Fig. 2.14: Control of Tuberculosis

2.4 DIPTHERIA

Diptheria occurs mostly in children. This is a serious infective disease. This is caused by Corynebacterium diphtheria bacteria. In this, infection mainly occurs in tonsils, nose and throat. These microorganisms make artificial layer on tonsils and throat and causes suffocation and breathing difficulty.

Some important points regarding Diptheria

It usually happens during winter season.

1. It usually effects children with less than 5 years of age.
2. Due to inclusion of diphtheria vaccine in national immunization schedule, the incidence of cases has rapidly reduced.
3. Vaccine available in the name of DPT where D stands for diphtheria, P stands for pertussis and T stands for tetanus.
4. Earlier in the villages diptheria is called as "Galghentu" and for treatment they opt for superstitious methods and many children lost their life due to this.

Symptoms

1. Throat pain with fever.
2. If membrane is formed in throat and on tonsils and any attempt to remove it causes bleeding.
3. Children feel difficulty in swallowing food and milk.
4. Obstruction of respiratory tract leads to even death.

Treatment

- Isolate the affected child from healthy children.
- Affected child is immediately send to doctor or hospital.

Role of Health Worker

1. Encourage for DPT vaccination on time
2. Keep the DPT vaccine at 4-8 degree Celsius to maintain cold chain.
3. Send the list of affected children to health officers

What Health Workers should not do

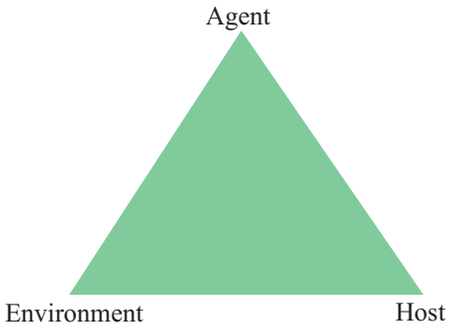
1. Do not treat self when a child is diagnosed with diphtheria.
2. Do not encourage faith-healers.

2.5 PNEUMONIA

This disease is caused by Pneumococcal bacteria, which infect the lungs and trachea and becomes severely infected. If not treated well then death of child occurs. Treatment can be done at home under guidance of doctor.

Some Important Facts of Pneumonia

1. It is caused by Pneumococcal pneumoniae.
2. Difficulty in breathing due to accumulation of fibrin in passage of lungs.
3. Difficulty in breathing due to obstruction in passage of lungs.
4. This is an air-borne infectious disease, means it transmit from infected person to healthy one through air.



Heterotroph host: In boys and girls between 2 months to 5 years of age.

Environment

1. Crowded area.
2. Malnutrition plays an important role.
3. Poor economic conditions.

Other Causes

Meningococcal meningitis, Tuberculosis and other bacteria causes Pneumonia.

Clinical Symptoms

1. Child feels drowsy and unattentive
2. Children with malnutrition – symptoms of malnutrition
3. Abnormal Breathing – severe wheezing
4. Cough, chills, running nose and fever
5. Increased sleep (lethargic)
6. Unable to take liquid foods
7. Spasm found in children in serious cases
8. Cyanosis means bluishness of nails, lips

Treatment

1. Use antibiotics and antipyretics like Paracetamol.
2. Children should be kept warm.
3. Give nutritive food to children (do not stop the food).
4. Bring serious cases to Primary health centre/hospital.
5. Oxygen is needed in serious cases.
6. Give breast feeding continuously.

Factors causing Death

- Absence of treatment.
- Delay in the treatment of patient by this hospital.
- Improper treatment.

Prevention

1. Mother's feed is beneficial for child to prevent from Pneumonia.
2. Prevent from crowded and dusty environment.
3. Eat hygienic and balanced food.
4. Give proper rest to the child.
5. Maintain the child with warm clothes to prevent from cold.
6. Give health education to mothers regarding Pneumonia.

INTEXT QUESTIONS 2.1

Fill in the blanks:

1. Carrier of Dengue is ..... mosquito.
2. Malaria destroys our ..... blood cells by attacking on them.
3. Patient do not feel pain during pricking the pin in affected areas in ..... disease.
4. Coughing for more than 3 weeks is a main symptom of ..... disease.
5. Diptheria affects mainly children of less than ..... years of age.

Notes

2.6 FOOD POISONING

Pollution or allergies in food plays a major role in affecting our health. Many bacteria, undigested chemicals make our food polluted and cause loose motions, vomiting, and abdominal pain and make us diseased. People eat food in parties, marriages, and other occasions without washing hands, eat unhygienic food, eat open food in the market and drink polluted water and suffer from food poisoning.

Some important points regarding polluted food

1. Packaged food makes food poisonous, mainly due to presence of preservatives, bad handling during packing and also due to not consumption by expiry date.
2. Do not consume open foods in market or vendor's food because it is contaminated with dust and flies.
3. Food made in dhaba have long cold storage which plays important role in food poisoning.
4. Even open food and long cold storage of food at home leads to food poisoning.
5. Over use of fertilizers and pesticides makes food poisoned.
6. Washing hands with soap before eating food will helps to prevent from food poisoning and other infective diseases.
7. By eating polluted food, there is a risk of intestinal carcinoma and also other diseases like IBS, Ulcerative Colitis.
8. By drinking hygienic water, we can prevent from food poisoning.

Symptoms

1. Stools with mucus and blood, these needs to be taken seriously and to be treated immediately.
2. Vomiting, nausea and fullness of abdomen.
3. Loose motions.
4. Difficulty in swallowing.
5. Pain in the abdomen.
6. Blurred vision.
7. Weakness in nerves.
8. Dehydration.

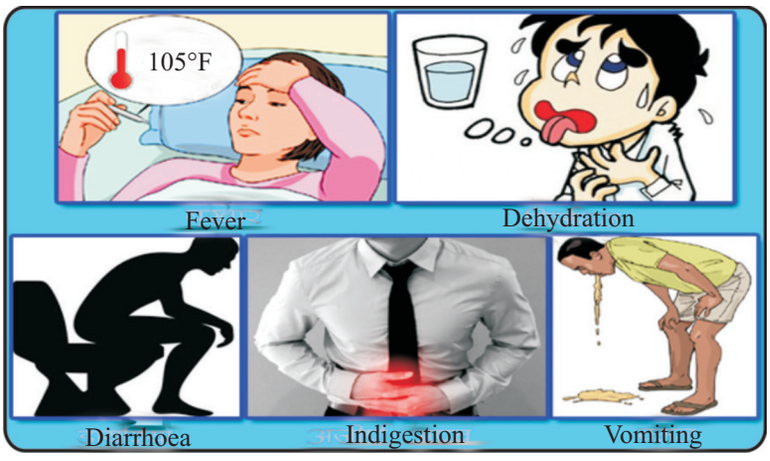


Fig. 2.15: Symptoms of food poisoning

Causes of Food Poisoning

1. Mostly, it is caused by Salmonella, Botulinum, Staphylococcus, Shigella etc.
2. Besides this, many chemicals like arsenic causes food poisoning.
3. Many plants and their fruits causes food poisoning.
4. Sea foods like Jhinga fish.
5. Use of polluted fertilizers and pesticides in excess quantity.
6. Eating food without washing hands also a big cause of food poisoning.
7. An unhygienic procedure during making food leads to poisonous food usually happens when preparing in large quantities by groups of people.

Fig. 2.16: Food poisoning - Knowledge

Notes

Methods of Prevention

1. Food makers should remember following points:
   - Do not get infected, take all precautions.
   - Get vaccinated for typhoid and wear cap.
   - Cut nails small and clean them.
2. Pasteurize the milk.
3. Do not eat stored food. Eat fresh food.
4. Do not keep 2-3 days cooked food in the refrigerator.
5. Use always filter and water.
6. Do not use packed food.
7. Clean table, chair, utensil, etc. so that dust, flies, mice etc may not sit.
8. Do not stock garbage.

Treatment

1. Give ORS to patient suffering from food poisoning.
2. There are many causes of food poisoning, so, bring the patient to the doctor for correct diagnosis and treatment.

Role of the Health Worker

1. If there is possibility of food poisoning seen anywhere, then report to concerned doctor or shift to the hospital immediately.
2. Inspect the food kept in hotels, dhaba, and restaurant and refuse the people to eat open foods and tell them about dangers it causes.
3. Inspect such nearby patients.

INTEXT QUESTIONS 2.2

Tick the following statements if True or False:

1. Mostly food poisoning is caused by packed food. ( )
2. Food polluted by the use of fertilizers and pesticides is also a cause of food poisoning. ( )
3. There is a no role of collection of waste in food poisoning. ( )

2.7 VENEREAL INFECTION

There are many diseases which transmit and spread through sexual relations. Some disease names are as follows:

1. Syphilis
2. Gonorrhea
3. Trichomonas vaginalis
4. Hepatitis B
5. AIDS

Factors for Spreading Venereal Infections

1. Age between 20 to 50 years.
2. It occurs in both males and females but more in males in comparison to females.
3. It occurs mostly in lower economic social status.
4. It migrates from one place to another with the migration of infected person.
5. It occurs more in illiterate and careless people.
6. Homosexuals also spread these diseases.
7. Drug addicts etc. are careless in sex and are responsible for spreading such diseases.

Symptoms of Venereal Diseases

1. Smell from vagina and burning sensation, pain, itching during coitus.
2. Burning micturition.
3. Pain and boils in genital parts of males and females.
4. Discharge from penis and vagina.

Complications in Venereal Diseases

1. Urethral stricture
2. Infertility and sub infertility

Notes

3. Congenital anomalies
4. Abdominal Pain
5. Ectopic pregnancy

Different venereal diseases have different symptoms and complications which we will study in concern disease.

Preventive Measures

1. Males and Females should not visit prostitute homes.
2. Prevent sexual relationship from more than one partner.
3. Clean sexual parts after every coitus.
4. If possibility of infection in genital areas, treat immediately. Do not try to hide it.

Role of Health Worker

1. Search those cases and treat them. Make the list of sexual relation of infected patient, investigate and treat them.
2. Educate the people about symptoms, mode of spreads and advise them for treatment.
3. Encourage the patients to take treatment in sexual disease department
4. Identify the sex workers time to time, manage, investigate and treat them.
5. Delay in treatment can give rise to more complications – disease can become chronic or covert into carcinogenic. Create awareness for it.

2.7.1 Syphilis

1. It is caused by Treponema pallidum bacteria. This bacteria is similar to shape of screw of cork.
2. It occurs between 18 to 40 years of age group.
3. It happens in children as congenital deformity.
4. Males are affected more in comparison to females.

5. Conductors, drivers, police persons, soldiers etc suffer more because they reside far away from their families.
6. Single & alone person and divorce people also suffer more.
7. Lower economic class people have high possibility of this disease.
8. People who transfer from village to city for business are high in number for this disease.
9. People who work in company and undertake out stationed tours due to company work have high possibility for this disease.
10. Symptoms are seen after 10 to 90 days of contact.

Symptoms

1. Wound develops in outer areas of penis and vagina without pain.
2. Mild infertility occurs in both males and females.
3. After that, swelling arises in knees and thighs without pain.
4. People delay to take treatment because of fear and shyness which causes boils over penis, in mouth and swelling in joints.
5. Newborn babies also catch this disease from mother which is called congenital syphilis.

Treatment

In case of V.D.R.L. Positive:

1. Give penicillin injection for long time as per doctor advice. It also causes anaphylactic reaction, so it is better administered after sensitivity test.
2. In penicillin sensitive case, other medicines like ampicillin, amoxicillin etc. are also useful.

Preventive Measures

1. We prevent from Syphilis and other venereal diseases by using condom during sex.
2. Educate the people to prevent them from sexual diseases. Inform them about types of spreading and harms of relation with prostitutes. Such measures can prevent the people from sexual diseases.

Notes

2.7.2 Gonorrhea

Like syphilis, gonorrhea is also a disease in society. It spreads through Neisseria gonorrhoeae, a gram negative bacteria.

Some important Factors

1. It occurs mostly in the age of 18 years when sexual activeness is at its peak.
2. Males affect more in comparison to females.
3. Single person, divorcee, call girls etc. get affected.
4. According to socio and economical view, poor, illiterate and unemployed people get affected easily.
5. Due to increase of migration of people from village to city due to jobs, it is affecting them easily.
6. People who reside in densely populated areas like slums (jhuggi-jhopari) get affected easily.
7. Symptoms appear within 1 week after infection. It does not have high incubation period like syphilis.

Symptoms

1. Swelling, burning and pain in the urinary tract.
2. Oily wax like discharge from urinary tract and after spots spread over it.
3. Later on shrinkage in urinary tract.

Diagnosis

Culture of fluid coming from urinary tract is done for diagnosis of the disease.

Treatment

After diagnosis, treatment is done with antibiotics by doctor's advice. Like syphilis it is cured with complete treatment of penicillin.

Complications

If treatment is not done on time, shrinkage in urinary tract occurs which causes recurrent UTI.

Preventive Measures

These are same as syphilis – use of condom, social awareness and early detection and treatment.

2.7.3 AIDS

AIDS is a very fearful name in our society. The cause for its fear is non-availability of treatment. In India more than 50 lakh people are HIV positive and their number is increasing day by day.

Some Important Factors regarding AIDS

AIDS (Acquired Immune Deficiency Syndrome):

1. It is caused by virus – which is known as Human Immune Deficiency Virus.
2. At present, there is no medicine for its control.
3. This virus attacks on immunity of affected people and make them weak. This immunity fight against various diseases. As a result, patients suffer from many diseases and do not get recovered.

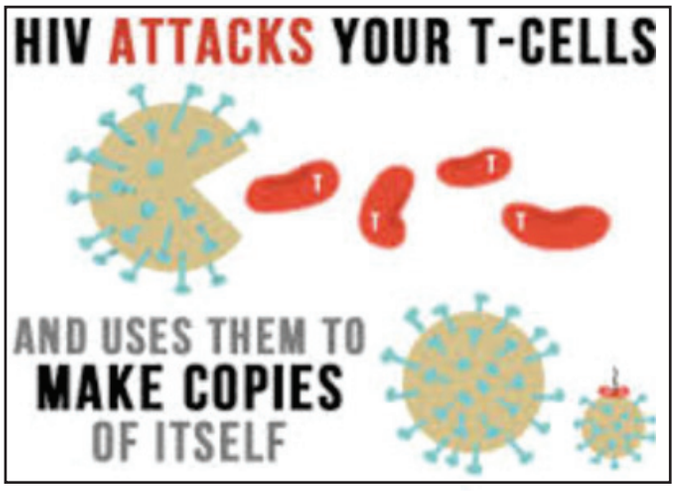


Fig. 2.17: HIV attacking immune cells

4. This is not a hereditary disease. It is acquired from outside environment that is why it is called acquired disease.
5. HIV Positive means, patient infected from HIV in last 6 to 12 weeks. In this period person has immunity and this virus develops inside the body. If investigate the patient in this window period, the report can be negative-but person can be infected from this despite of negative HIV report.

Notes

Window Period

This is a period of 6 to 12 weeks, when person infected from HIV but still have immunity in the body. It means person looks like a healthy one- even blood test also comes negative. Blood banks should be very careful with these people because blood of such person can infect other person.

Some other Facts

1. Sexually active people are mainly affected which means people between 20 and 40 year age.
2. Males and females are affected equally.
3. Sex workers are mostly affected.
4. People who reside far away from their houses for job purpose suffer more.
5. Divorcee and lonely person get affected easily – because they do not have sexual hygiene.
6. Lower economical social class people who live in crowded and dense areas get affected easily.
7. Increased urbanizationhas has lead to increase in the incidence of the disease.

Common and Clinical Symptoms

1. Weight loss 10% wt. loss in short time.
2. Long time fever – which does not get cure for more than 1 month.
3. Persistent untreatable diarrhea, dry cough, boils in mouth and breathing difficulty.
4. Swelling of lymph nodes at thighs, neck, axilla etc.
5. Difficulty in vision.
6. Vomiting.
7. Wound on the skin, eczema or fungal infection.
8. Unpredictable cancer over skin or other sites.
9. Weakness of brain and nervous system results memory loss, diminish of decision making capacity.

10. Some opportunistic infections which are not commonly seen in human beings.
11. Gets infected by Tuberculosis.

How AIDS is Spread

1. Maintaining sexual relations with male or female who suffers from AIDS (Sexual relation – genital, anal or oral).
2. HIV is present in semen, vaginal discharge, saliva, blood, blood components and mother' feed).
3. Use of contaminated injection.
4. Use of contaminated blood or blood components.
5. In fetus through placenta.
6. From infected razor during shaving or infected instruments during shaving, etc.

How AIDS is not Spread

There are lot many myths prevalent in society regarding AIDS:

1. By hand shake.
2. By hug, kiss, telephonic conversation or playing together.
3. By use of common toilet or sharing room.
4. During journey in train or bus.
5. Not spread by fly or mosquito.
6. By sneezing, coughing, spitting etc.
7. Not spread during working in the office together.

Preventive Measures

By using these measures, we can protect ourselves and also prevent the spread in society:

1. Use of condom is must during sexual relation.
2. Make safe sexual relation, prevent multiple sexual partners.
3. Do not use infected needle or syringe. Use plastic disposable syringe and destroy after use.
4. Manage treatment and diagnosis of both partners.
5. Educate common people on how AIDS spread.

6. After identifying the HIV positive case, make the list of their sexual contacts. Investigate all and after that find their sexual partners also.
7. Examine the blood before transfusion. Encourage the blood donors and avoid taking blood from professional blood donors.
8. It is important to Identify and screen the sex workers and call girls on regular basis.

INTEXT QUESTIONS 2.3

Match the pairs of following:

A		B	
1.	Syphilis	(i)	Infected injection
2.	Gonorrhea	(ii)	Condom
3.	HIV/AIDS	(iii)	Gram negative bacteria
4.	Safe sexual relation	(iv)	Treponema Pallidum

2.8 SOME PARASITIC INFECTIONS

2.8.1 Amoebiasis

Amoebiasis is a disease which is caused by Entamoeba histolytica. Mostly this disease affects intestines and cause diarrhea and dysentery. Along with intestine this parasite affects liver, lungs, spleen and even brain.

Some important points regarding Amoebiasis:

1. It affects liver, lungs, brain and creates abscess which is life threatening.
2. It enters in our oral – fecal route in which flies acts as carriers.
3. We prevent it by maintaining personal cleanliness and hygiene.
4. Do not keep fruits and vegetables in refrigerator without washing them. Unwashed fruits and vegetables spoil other foods.
5. Polluted food and water are the only and main causes for its spread.

Carriers of Spreading

1. It enters in our body through food which gets contaminated by parasites. This parasite is carried by flies and dust which are present in our stool.

2. It can spreads through homosexuals as well.
3. It also spreads through food intake without hand wash, polluted food and water.

Symptoms

1. Abdominal pain.
2. Blood and mucus in stools.
3. Intestines– other infections like develop wound in liver, lungs and brain and it further changes into abscess.

Diagnosis

1. Entamoeba hisyolytica present in the stool test.
2. Color of liver and lungs abscess is like anchovy - sauce. This parasite is found in them.

Treatment

1. It will be cured by Metronidazole or Tinidazole or Secnidazole for 5 days administering proper dose
2. Take light and easily digestible food during treatment i.e., khichdi, wet bhaat etc.

Role of the Health Worker in Prevention

1. Educate the people that they should wash hands properly before and after eating food and proper hand wash after passing urine and stool.
2. Safe collection of human waste of urine and stool. Do not pass in open grounds. In emergency go too far away grounds and after passing stool, cover it with the soil.
3. Filter the water and use chlorine. Do not drink water elsewhere.
4. Prevent the nearby areas from flies by use bleaching powder etc.
5. Use fruits and vegetables after proper wash with the water.
6. Focus on personal hygiene, physical, clothings, and nearby sanitary cleanliness.
7. Educate the society about its prevention.

2.8.2 Hook Worm (Encylostoma duodenale) Infestation

This happens commonly in those who walk bare feet. Mainly where people pass stools in open grounds. This is a parasitic infection which affects our intestines. It develops anemia.

Important Points regarding Hookworm

1. It resides in our small intestine.
2. Adult male hook worm is smaller than female hook worm.
3. It is cylindrical in shape and its color is either brown or white.
4. It's body parts are divided into mouth and tail.
5. It has genital organs too.
6. It can live in our small intestine for 3 to 4 years.

Life Cycle of Hook Worm

It is in the form of egg, larvae and adult hook worm:

1. From egg to larvae - its eggs are circular and colorless. It enters in soil by the feces of adult. Eggs are transformed into larvae. Larvae are present in soil of trees where moisture is more.

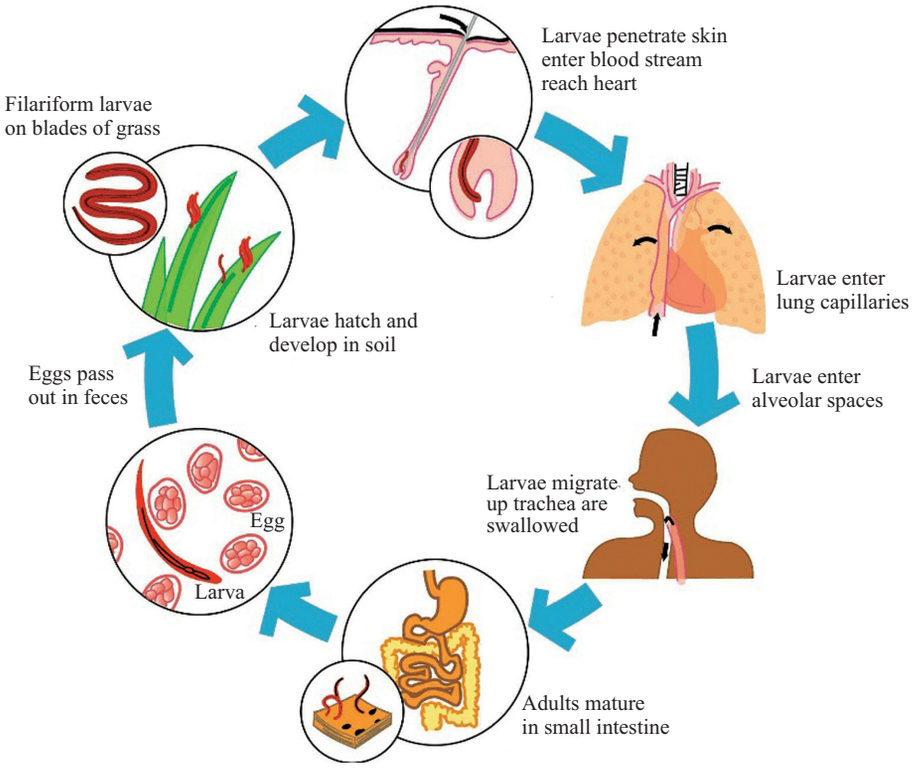


Fig. 2.18: Hook Worm – Life Cycle

2. When people walk barefoot then these larvae enters in the soles and stick with the toes and gradually enters in the skin reaches in blood circulation then in the heart, lungs, from lungs to trachea to esophagus to abdomen, from here they reaches to small intestine. Here, it develops and covert into adult male and female worms.

Symptoms

1. Allergic symptoms – itching, spots over skin.
2. Breathing difficulty.
3. Severe anemia, yellowish and whitish skin.
4. Pain in abdomen.

Diagnosis

1. Eggs and larvae of Hook worm are found in stool examination.
2. Eosinophil count increases in blood.

Preventive Measures

1. Use personal toilets.
2. Do not pass stools in open space – if emergency then cover the waste with soil.
3. Do not walk without slippers.

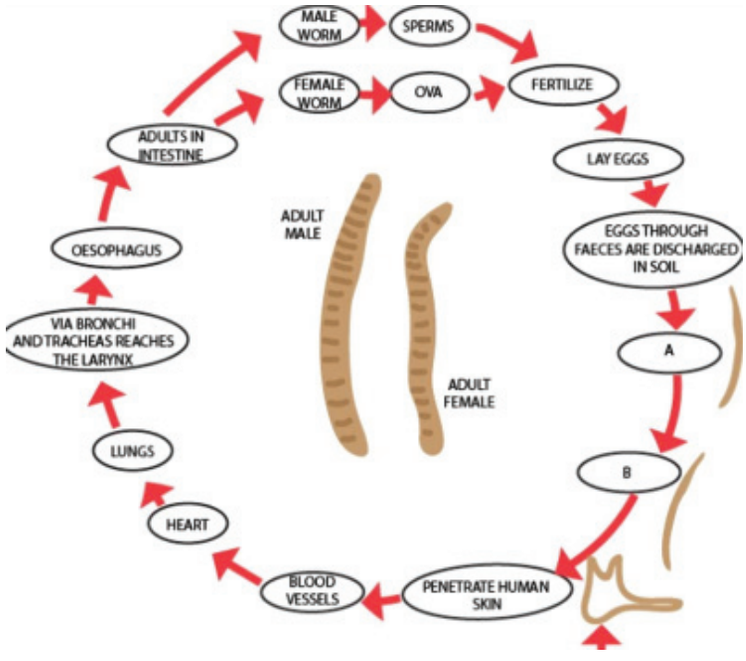


Fig. 2.19: Hook Worm – Life Cycle

Treatment

1. Albendazole or Mebendazole for 3 days and repeat stool examination.
2. Do treatment with advice of the doctor.
3. Treat anemia with oral medicines and transfuse blood in serious condition.

Role of Health Worker

1. Encourage not to use open space for toilets.
2. Advice people to use footwear.
3. Send the anemic patient to consult doctor immediately.

2.8.3 Ascariasis (Round worm)

Mostly it is visible during defecation or from the mouth. We know it as leech of the abdomen. It looks similar to earthworm in structure but its color is some whitish and pink.

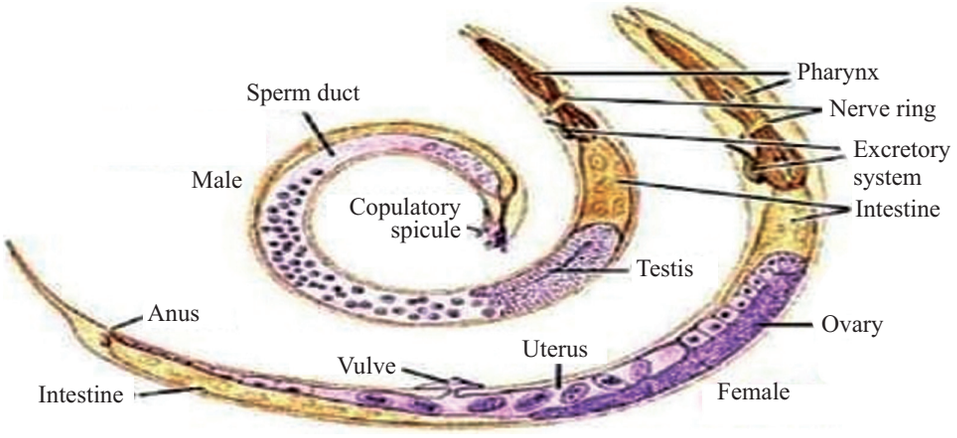


Fig. 2.20: Ascariasis – Round Worm

Some Facts regarding Ascariasis

1. It is round in shape and has tail like structure at its both ends.
2. Male worm is 15 to 20 cm. long and a part of tail is curved. Female worm is 35 cm. longer and stouter in comparison to male.
3. The fluid of body of Ascaris cause allergy which results in breathing difficulty. Reddish spots over skin are seen.

4. Surgery is needed in the intestinal obstruction caused by Ascaris. In this, male and female worms collect and make network which obstruct the intestine.

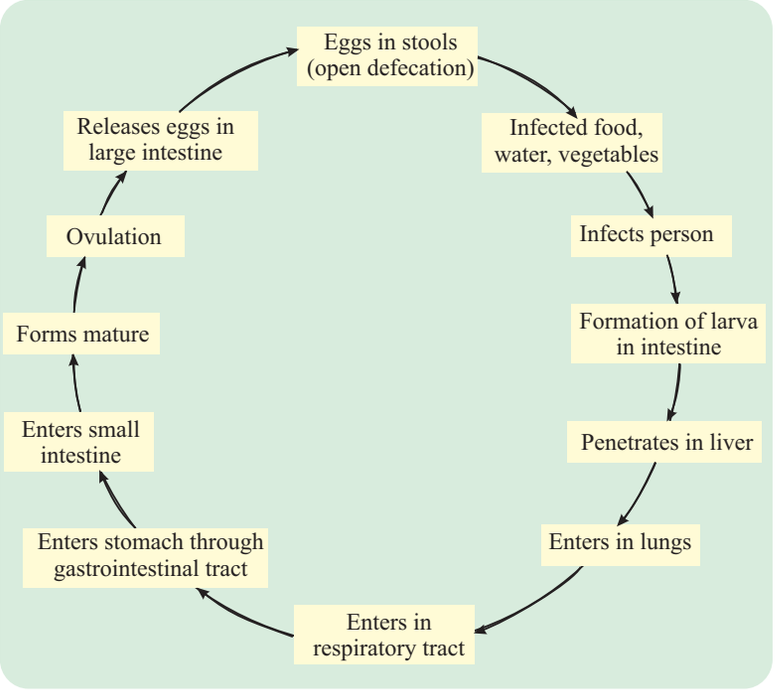


Fig. 2.21: Infection of Round Worm

Eggs of Ascaris reach the soil during defecation, and then they contaminate our food and water with the help of dust. Then they enter in intestine through food & water where these eggs are converted into larvae. Then, these larvae complete their life cycle in lungs and again reach in intestine. It converts into adult male and female worms in small intestine.

Symptoms

1. Anemia
2. Eosinophilia
3. Symptoms of allergy and breathing difficulty
4. Intestinal Obstruction
5. Pain in abdomen
6. Feeling of nausea

Diagnosis

1. Eggs of Ascaris are found in the stool examination.
2. Adult Ascaris exit from mouth and anal route.

Treatment

1. Take Albendazole, Mebendazole and Pyrantel Pamoate in proper dose with the advice of the doctor.
2. Occasionally repeat the dose for longer duration.

Role of Health Worker in Prevention

1. Encourage for proper collection of stool and urine.
2. Every patient should take complete treatment so that they will not become a carrier.
3. Educate about self-hygiene and cleanliness.
4. Advice to eat fresh and hygienic food. Tell them about harmful effet of street food.
5. Discourage open space defecation and micturition.

What Health Workers should not do

In case of intestinal obstruction bring the patient to the hospital as soon as possible.

INTEXT QUESTIONS 2.4

Fill in the blanks:

1. To prevent from the larvae of Hook Worm entering the body, wear .....
2. Disease which is caused by Entamoeba histolytica is .....
3. Diagnosis of infection by Round Worm is done by ..... examination.
4. Hook Worm resides in ..... of the body.
5. Amoeba enters in our body through ..... route.

WHAT HAVE YOU LEARNT

You have learnt many contagious diseases in this chapter like Dengue, Malaria, Leprosy, Tuberculosis, Diptheria, Pneumonia and Food Poisoning. You have understood the identification of these diseases, symptoms, prevention and control measures. Sexually transmitted diseases like Syphilis, Gonorrhoea, and AIDS are also being learnt in this chapter. Role of Health Worker is very important in all these diseases whose detailed knowledge is given in this chapter.

TERMINAL EXERCISE

1. Describe the role of health worker in control and prevention of Dengue.
2. Write symptoms, complications and preventive measures of Malaria.
3. Describe the role of Health worker in the myths with respect to Leprosy.
4. Write about the Treatment and Prevention of Tuberculosis.
5. List the causes of Food Poisoning.
6. Describe in detail the different types of preventive measures on sexually transmitted diseases.
7. Write about the Life Cycle of Hook Worm.

ANSWERS TO INTEXT QUESTIONS

2.1.

1. Aedes 2. Red 3. Leprosy 4. TB 5. Five

2.2.

1. True 2. True 3. False

2.3.

1. (iv) 2. (iii) 3. (i) 4. (ii)

2.4.

1. Shoes 2. Amoebiasis 3. Stool
4. Small intestine 5. Faecal-Oral

3

PREVENTIVE MEASURES

Prevention is better than cure – This proverb is popular since beginning. The development of science and technology has also focused on preventive measures. Infectious diseases and diseases occur due to bad/unhealthy life style. But these can be controlled through preventive measures. Apart from this, patients who are helpless and suffering with many diseases get benefitted through rehabilitation measures.

In this lesson we will discuss about these topics in detail.

OBJECTIVES

After stydying this lesson, you will be able to:

- identify the root cause and associate cause of various diseases;
- helps in prevention of origin of disease and its associated factors;
- recognize quality of food and water which helps in controlling diseases occurring due to contaminated food and various micro-organisms;
- keep diseases away by adopting techniques of immunization and food supplementation;
- transform disabled persons to capable persons by adopting latest techniques of rehabilitation.

3.1 ORIGIN OF DISEASE – IT'S ROOT CAUSE AND ASSOCIATED CAUSES

These are the root causes of disease origin:

1. Bacteria, virus, parasite, fungus etc. are micro-organisms which are responsible for origin of a diseases

Following are the associated causes of disease origin:

2. Illiteracy, un-hygienic life style, violence, unavailability of treatment due to dense population, poverty, unavailability of medicines, un-hygienic food habits etc.

3.2 CAUSES OF ORIGIN OF DISEASE AND IT'S CONTROL

The diseases which are commonly affecting the population at community level are enlisted and measures are taken to diagnose those diseases, so that they can be identified easily in the community.

Along with this, they identify associate factors which helps in spreading the disease and do their assessment. Most of the associated causes are common like - illiteracy, un-hygienic life style, violence, unavailability of treatment due to dense population, poverty, unavailability of medicines, unhygienic food habits etc.

Planning is done in comprehensive way in order to decrease the associate factors of disease by utilizing maximum available resources. In this process one need to take special steps, which we are going to discuss in detail in this lesson.

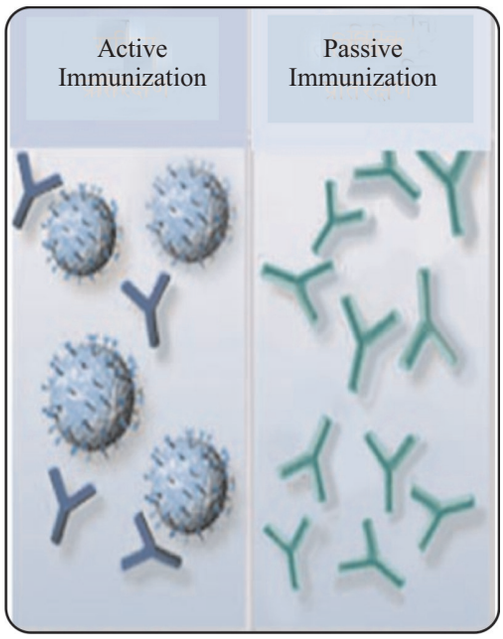


Fig. 3.1: Types of immunization

To control infectious diseases, vaccines are available and for specific diseases immunoglobulins are also available. With the help of these, the person shall receive active and passive immunization and the person will get immune to that specific disease.

3.2.1 Active Immunization

The bacteria and virus which are responsible for spreading infectious diseases are used by a specific method to prepare vaccine – if this vaccine is introduced into the body, it won't cause any disease rather it protects the body against that particular disease which is caused by bacteria and virus. Hence, the children gets protection from specific disease by vaccination. Under National immunization programme the vaccines are available for diseases like Polio, TB, Diphtheria, Pertussis,

Tetanus, Measles, Mumps, Rubella and Hepatitis – B. Apart from this our government has also made an arrangement of the availability of vaccine for Japanese encephalitis for the benefit of the people.

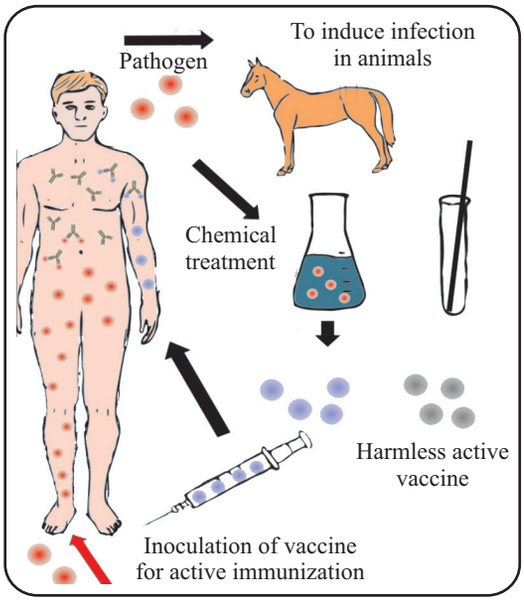


Fig. 3.2: Active immunization

Other optional vaccines like Typhoid vaccine, Chicken pox vaccine are also available in the market.

3.2.2 Passive Immunization

To activate the active immunity in the body, it needs some time to develop antibodies. In the meantime if the deadly infectious disease spreads in the community, it should be controlled urgently by protecting the person by giving immunoglobulins. This is given through injection so that it protects the children and old age persons from the occurrence of the disease. Immunoglobulins help to neutralize the pathogens such as bacteria and virus in the body and prevent its growth. It acts immediately after

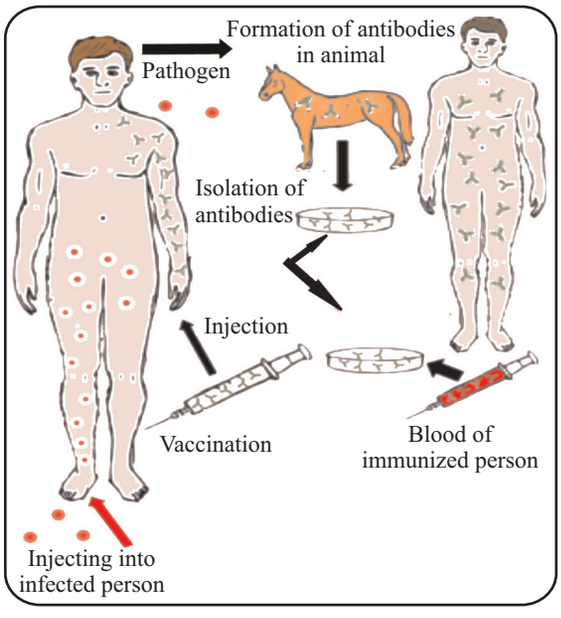


Fig. 3.3: Passive immunization

injecting into the body. Just like, anti-toxins and immunoglobulins of tetanus and rabies.

3.2.3 National Immunization Schedule

At birth	–	B.C.G., O.P.V and Hepatitis B
6th week,10th week, and 14th week	–	D.P.T and O.P.V.
In the 9th month	–	M.M.R (measles, mumps, rubella)
16th to 24 months	–	D.P.T. and O.P.V
5-6 years	–	D.T.
10-16 years	–	T.T.
For pregnant women	–	2 doses of T.T (1st dose in the first trimester and 2nd dose after one month gap)

Note:

1. **In between two vaccines there should be a gap of minimum 1 month.**
2. **Vaccination can be given in conditions like mild fever, cough and cold.**

3.2.4 Prevention by Chemo-prophylaxis

We can protect ourselves from many communicable or epidemic diseases by using various drugs/medicines. These drugs prevent us from spreading of disease's into the body and protect the person from infection . For example person gets protected almost from spreading malaria, if he takes chloroquine as a prophylaxis drug. The table 3.1 shows disease and its prophylaxis drug.

Table 3.1: Disease, mode of spreading and prophylactic drug

Name of the disease	Mode of spreading	Prophylactic drug
Tuberculosis	Suspect contact	Isoniazide
Diptheria	Contact	Erythromycin
Tetanus	Wound contact	TT and erythromycin
Malaria	Malaria epidemic	Chloroquine
Meningococcus	Nearby contact	Ciprofloxacin

3.2.5 Protective Mask

It protects us from getting many infections. Many infections spread through breathing, sneezing and coughing. Diseases like influenza, pneumonia, plaque can

be prevented entering into our body by using this mask. This infection spreads from an infected person to a healthy person. When an infected person coughs, sneezes or exhale, the microorganisms/pathogens are released outside into the environment and when this air is inhaled by a healthy person, he gets infected. In the places like operation theatre, labour room or polluted area, wearing a mask will protect them from getting infections. Doctor, Nurse and health worker wear face mask to protect themselves from the patients.

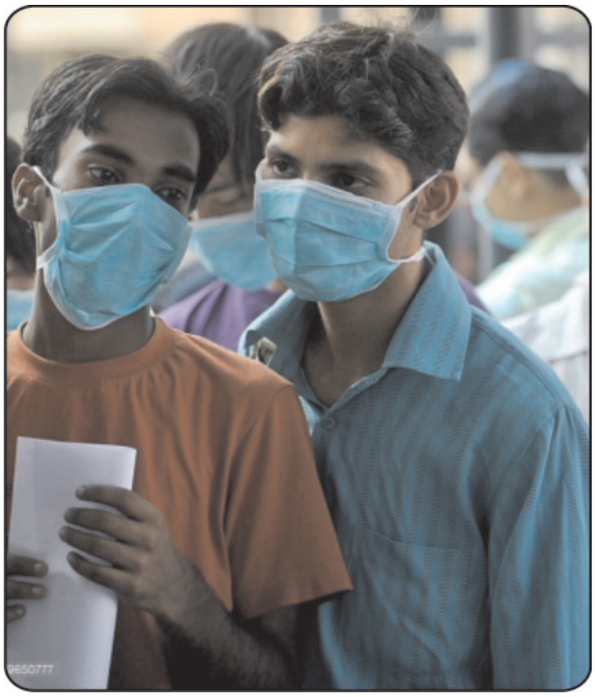


Fig. 3.4: Protective mask

3.3 DIFFERENT ROUTES OF TRANSMISSION OF INFECTION

1. Oral Route

Unhygienic hands, contaminated food and water leads to cholera, polio and food poisoning through oral route.

Fig. 3.5: Transmission of infection through oral route

Prevention

(i) Before taking food and after using washrooms, one should wash their hands properly to avoid any contamination.

(ii) Wash vegetables and fruits thoroughly with clean water.

(iii) Always eat freshly prepared warm food and drink clean water.

Fig. 3.6: Procedure of hand washing

2. Rectal Route/Faecal Route

Open defecation leads to release of micro-organisms openly and contaminate hands, feet and saliva. Further they pollute food and water which are responsible for many diseases.

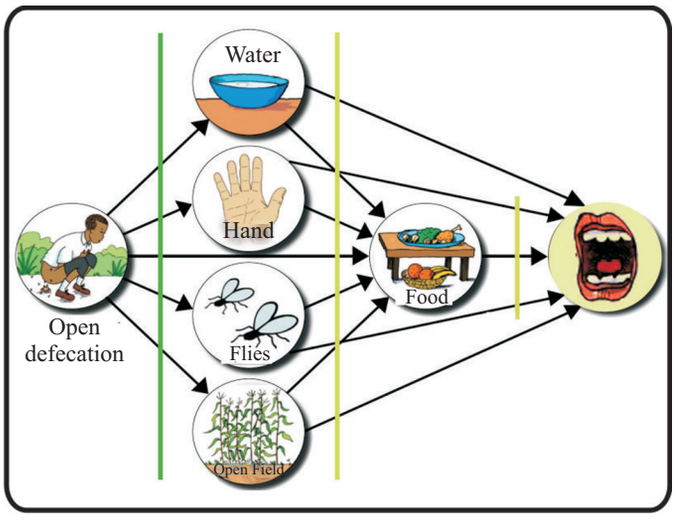


Fig. 3.7: Transmission of infection through rectal route

Prevention

(i) Timely wash hands and legs thoroughly with the clean water.

(ii) Always use bathroom/latrine. Don't do open defecation.

Notes

3. Flies and Mosquitoes

Most of the diseases spread through flies and mosquitoes for example diarrhea, cholera, malaria. Diseases also occur due to contaminating food and water by flies and mosquitoes. These diseases when not treated properly leads even to death.

Preventive Measures

(i) Cleaning measures to be taken for nearby drains so that mosquitoes and flies do not replicate. Close the drains properly and use disposables wherever needed.

(ii) At ugly and dirty places like dump station there should be timely use of disinfectants so that mosquitoes and flies should not replicate.

(iii) Sanitation measures should be taken by municipal corporation.

(iv) Practice of dumping wastage in dustbins only.

3.4 DIRECT CONTACT ROUTE

These diseases spread from infected person to healthy person. For example leprosy, Sexually transmitted diseases like AIDS, Hepatitis-B etc.

Preventive Measures

1. Don't do sex with multiple partners.
2. Use disposable syringe.
3. Blood and blood donation procedures should be handled with sterile procedure.
4. The bio waste formed in the hospital should be properly disposed so that it should not affect the population.
5. Wash your hands after touching the patient during treatment and investigations.

3.5 PREVENTION OF DISEASES IN THE HOSPITAL

Hospitals are the places where diseases get cured but sometimes, they may also be responsible in spreading the diseases – this is largely due to absence of proper measures. Here, infected persons come to hospitals from different places and healthy persons like doctors, nurses, compounders health workers and the patient's guardians might also get infected through them. Therefore, hospital must take proper cleaning and safety measures.

To stop spreading diseases in the hospital the followings steps are to be taken:

(a) Sterilization

The person infected from communicable diseases should be isolated and not come in physical contact with others. There are some places where cleanliness is must like:

(a) Labour Room

(b) Operation Theatre

(c) Neonatal Intensive Care Unit (NICU)

(d) Recovery Room etc.

Sterilization and fumigation are also done specifically to these places so that the microbes present on the surface and air gets destroyed.

Infection: The patient who died with communicable disease is also sterilized properly so that other persons should not get affected with infected dead body.

(b) Use of Mask

Air-borne infections pass from infected person to healthy person through breathing. With usage of mask this transmission can be prevented from one person to another.

(c) Use of Cap

Our hair is filled with dust and germs, which may pass from person to person in operation theatre. These caps can either be disposable type or cloth material. Our hair should be covered with this head cap.

(d) Use of Gloves

Doctors, nurses, health workers and lab technicians must wear hand gloves in order to avoid transmission of dirt, dust, blood stains, pathogens from one person to another. Diseases transfer through blood like AIDS, Hepatitis-B, Syphylis, etc. can be prevented by wearing hand gloves.

(e) Use of Gown

Use of sterilized gown during operation and other minor procedures will protect the patient from contaminated health workers.

(f) Use of Shoes

One should not walk on bare foot, rather they should wear shoes. If not, then dust and other pathogens will enter into the body through cracked foot – example Hook worm – it enters into our body through feet and causes anemia. This infection becomes severe in pregnant women.

(g) Use of Condom

The use of condom is to prevent diseases transmitted through sex i.e., sexually transmitted diseases (STD's) like gonorrhoea, syphyllis, AIDS etc.

INTEXT QUESTIONS 3.1

Fill in the blanks:

1. ..... can provide specific protection from STD's like syphilis.
2. By wearing ..... we can prevent hook worm infection.
3. While collecting blood sample of a patient, one should wear .....
4. Active immunity is being used in the community to prevent .....

3.6 FOOD SUPPLEMENTATION

Many of the diseases will lead to malnutrition in our body. Malnutrition is one of the main causative factor for infections. In our country balanced diet is not available in the lower socio economic group. The food they consume does not possess sufficient amount of proteins, carbohydrates, fats, vitamins and mineral salts. This leads to a condition called Malnutrition. Children and pregnant women become major victims of this condition. Most of the time women eat left over food only after other family members have eaten i.e., they eat left over food which may not be having nutrients.

We can eradicate malnutrition by supplying nutritional foods at schools. By supplying vitamin A and vitamin D, we can decrease the incidence of Night blindness and Rickets in children.

Even the government is running various schemes but these are not sufficient. Supplying iron and calcium tablets are not sufficient, if the pregnant woman is deficient of proteins. She may become sick easily, and thereby growth of the fetus impair and leads to Intra Uterine Growth Retardation (IUGR). It is very essential

that government must take steps at village level to eradicate malnutrition since pregnancy. Even in higher income group families we see persons suffering from both under nutrition as well as over nutrition. There is a need to create awareness among them as well.

Apart from these, addictions like alcohol, tobacco, intake of drugs shall show their impact on malnutrition. Government has to take every possible step to prevent these conditions.

3.7 REHABILITATION

Action of restoring a person to normal life that has been damaged due to previous illness is called Rehabilitation. Physical weakness is of two types:

(i) Temporary weakness

(ii) Permanent weakness

(i) Temporary Weakness

This type of temporary weakness occurs due to impact of different types of chronic diseases. In this type, hands or legs or voice become partially functional. Under such types of therapeutic conditions, the rehabilitation is done by physiotherapy and speech therapy to bring back the functions to normal.

(ii) Permanent Weakness

This type of weakness occurs due to accidents, fractures and dislocations, amputations and hemiplegia. Many of these conditions leads to permanent damage. In order to bring back normal functions, there is a need to fix artificial parts for proper movement of the body. In other conditions, physiotherapy can also help better to regain or restore stirring. 60% of normalcy stirring is restored through physiotherapy.

Need of Rehabilitation in the following conditions:

- Degeneration of joints leading to ankylosis
- Fractures and dislocations
- Fracture of femur in the old age
- Osteoarthritis
- After head injury

3.8 PREVENTION OF DISEASES

Health worker must take steps to prevent communicable diseases spreading in the community. They will succeed in preventing these diseases by 3 steps:

1. **Primary prevention**: As communicable diseases spreads from one person to other person, health worker creates awareness among community people about how to prevent communicable diseases.
2. **Secondary prevention**: Health worker creates awareness among community people that if communicable diseases spread in the community, what steps are to be followed to stop it further from spreading.
3. **Tertiary Prevention**: If any person is infected from the disease, what all measures are to be taken so that further damage can be prevented.

1. Primary Prevention

Role of the Health Worker

Health worker plays an important role in improving the health of the people. In order to prevent and not to spread disease in the community, health worker should create awareness about health education through lectures, posters and pamphlets and encourage them to adopt healthy lifestyle.

1. Health worker should make community, people understand about the food kept open/ not covered with lids, food on which flies, mosquitoes and house flies are lying, and chopped fruits and vegetables which are not covered with lid, should not to be consumed.
2. One should not drink water from the hand pump. If water from well are used for drinking, pour bleaching powder two times in a week. Water coming from chlorinated tap can be used or else chlorine tablet can be added into the water.
3. Health worker should make community people understand that contaminated food and water, dirty hands and fingers, open food, urine and stools shall cause diseases.
4. Make community people understand about importance of washing hands before eating and after using the bathroom.
5. Benefits of not having addiction of alcohol and cigarettes.

Make community people understand about importance of family planning: where the number of children in the family is limited so that their financial and social status will be improved. With good personal hygiene, one should be protected from many diseases. Immunization will also protect the person from specific diseases. Use of condom will help in family planning as well as prevent from STD's.

2. Secondary Prevention

In community transmission, role of health worker is to control the spread of infection by breaking the chain of transmission.

Infection chain	Source	Control Measurements	Disease spread via
Patient Carrier		• Prevention at the primary stage • Treatment at the primary stage • Separation • Information • Health education	• Contaminated water • Polluted air • Soil • Direct contact • Animal

3. Tertiary prevention

Role of health worker once the patient gets infected:

- Persons movements gets restricted once being affected from the infection like leprosy.
- Rehabilitation therapy – occupational therapy- physiotherapist will be helpful in these conditions.

INTEXT QUESTIONS 3.2

Fill in the blanks:

1. Rehabilitation will bring back patient to .....
2. Physical disability is of ..... types.
3. Prevention of disease is primary, secondary and .....

3.9 PERSONAL HYGIENE

Various health related practices comes under personal hygiene. Many diseases develop due to personal unhygienic conditions for example – oral diseases, dental diseases and skin diseases etc.

Health science is a study which lay emphasis on all factors to keep us healthy. Health condition depends upon personal hygiene and pollution. For example water pollution, air pollution, and diseases spreading through mosquitoes and flies like malaria, filaria etc are responsible in maintenance of the health.

Brushing | Nail cutting | Wearing shoes | Cleaning hair | Bathing daily | Hand washing

Fig. 3.8: Personal hygiene

(a) Regular Bath

Doing bath everyday will keep the body out of dirt and sweat. Bathing with soap and water will clean the body, therefore wash all the parts of the body properly. In the winter season it is ideal to take sun bath, as sunrays are the good source of vitamin D. Vitamin D is useful for our bones and it is also helpful in preventing children from Rickets.

(b) Wearing Neat and Clean Clothes

Every day we have to clean our clothes and dry them under sun rays. Wear neat and clean clothes every day after bath. Sunrays will damage pathogens present in the clothes. Unclean and dirty clothes will have bad impact on health and are symbol of indignity as well.

(c) Dental Care

Brush your teeth daily after taking meal to maintain oral hygiene and to keep teeth strong and healthy. Timely brushing will not only helps in preventing cavities in the teeth but also in maintaining gums by preventing diseases like pyorrhoea. Regular dental check up by dentist is also necessary.

(d) Eye Care

We should keep our eyes safe from smoke, dust and injury. Vitamin-A is essential for children because it will protect from diseases like Night Blindness. Children should not use kajal or surma because it may damage their eyes and if the fingers, used to apply kajal are dirty, that may also infect their eyes. Conditions like malnutrition increases the chances of Xeropthalmia and Night Blindness.

Consult an eye specialist if you have an eye disease like cataract and vision problems. Eye care can also be done by following methods –

1. Regular eye checkup of children in schools.
2. Diagnosis of corneal ulcers and their treatment.
3. Consulting eye specialist.
4. Balanced diet.
5. Health education.
6. Good physical health.

(e) Washing Hands

We should wash our hands before eating food and after using washroom. People who make food should wash their hands properly so that the diseases will not spread through food.

(f) Nail Cutting

While eating the food, nails come in contact with food. Nails have large amount of bacteria and dirt in it which may leads to many diseases. Hence, the nails of the person who serves the food should be checked always.

(g) Hair Care

We should take care of our hair because dirty hair can cause dandruff and lice. Washing hair properly with shampoo will prevent the hair from infections. Eating good food keep the hair healthy. Health worker should make sure that the people who are working in the kitchen must wear a head cap in order to prevent hair falling in the food.

(h) Open Defecation

Open defecation is the risk factor for infections like Hook worm, Cholera. Hence should always use sanitary washrooms.

(i) Menstrual Hygiene

Women are considered unclean during menstruation and they are not allowed to do many works because of superstitious people do not allow menstruating women to enter into the kitchen and do other house hold work. To control discharge women should use proper sanitary pads. Personal hygiene and inner wears hygiene should be maintained .

INTEXT QUESTIONS 3.3

Match the following:

1.	Teeth	(i)	Rickets
2.	Eye	(ii)	Hook worm infection
3.	Bone	(iii)	Wounds and bruises abscess and blisters
4.	Open defecation	(iv)	Pyorrhea
5.	Skin	(v)	Vitamin D
6.	Sun rays	(vi)	Night Blindness

3.10 QUARANTINE

If a person is infected by any communicable disease, they are kept isolated or their movements are restricted until the incubation period of that infection is over. Incubation period is the period between exposure to an infection and the appearance of the first symptom.

The persons who are coming from a country where the communicable disease is spread, they have to quarantine until the incubation period of that infection is over. So that they cannot spread the disease further. This applies to those especially who have not taken vaccine for that particular disease. The incubation period is different for different diseases, it is 5 days for cholera, 6 days for plague etc. The date is counted from date of journey the traveller started from their country.

(a) Infections

Disease	Causative organism	Symptoms	Treatment	Preventive measures
Cholera	Vibrio cholera	Acute diarrhea, stool like rice water, dehydration	O.R.S Antibiotics Tetracylline liquid diet	Immediate diagnosis and treatment, Hygienic sanitary condition, intake of oral rehydration solution.
Bacillary infection	Shigella	Dehydration, stool with mucus and blood	ORS, antibiotics, liquid diet.	Disinfecting human stool and urine, treatment of patient/ carrier, food safety measures and health education.
Amoebic dysentry	Entameoba histolytica	Diarrhea, small quantity of stool with blood and cramps	ORS, Metronidazole, liquid diet	Disinfecting human stool and urine, personal hygiene, food safety measures and health education.

(b) Bacterial infections

Disease	Causative organism	Symptoms	Treatment	Preventive measures
Tuber-culsosis	Mycobacterium tuberculae	Mild Fever in the evening, weight loss, sputum with blood from long period, chest pain. Loss of appetite, Chills, Night sweats	DOTS therapyAnti-tubercular drugs	Sputum for AFB and Mantoux test for diagnosis, good ventilation, covering nose and mouth while coughing
Tetanus	Clostridium tetani	Jaw cramping, Painful muscle stiffness all over the body, Trouble in swallowing, Jerking Headache.	Antitoxin D.P.T vaccinations in childrens.cleaning of wound. Antibiotics, Pain killers	TT injection to pregnant women Vaccination–tetanus toxoid containing vaccine, good wound care
Pneumonia	Pneumococcal Staphylococcal Streptococcal	Fever, sore throat, difficulty in breathing,	Antibiotics, symptomatic treatment	Protect children from smoke, cold weather. chest X-ray for diagnosis. Vaccination for children, prevent infection to upper respiratory tract

Notes

Tubercular Meningitis	Streptococcal Meningococcal	High fever, headache, neck pain	Antibiotics A.T.T in tuberculosis.	medicated treatment and Prevent from infectious diseases.
Streptococcal Meningococcal	Tubercular	Stiffness, coma	medicated treatment	prevent from infectious diseases.

(c) Parasitic infections

Disease	Causative organism	Symptoms measures	Treatment	Preventive
Malaria	P. vivax P. falciparum P. ovale P. malariae	fever with chills and sweating. Vivax malariae recurrent symptoms in 3 - 4 days like high grade fever,cramps in abdomen and unconscious.	Chloroquine	pesticides spray, mosquito net, clean water, dont store water,
Entamoeba histolytica	cyst present in faeces	severe abdomen pain, bloody stools, fever,liver abcesses	Antibiotics Metronindazole.	maintain enviroment cleaness and drinking water and food should be clean.
Round worm infection	Ascaris lumbricoides	Stomach pain, diarrhea, allergy, anemia	Mebendazole or Albendazole	Dispose of urine and stool properly, avoid open defecation, maintain personal hygiene.
Hook worm infection	Anchylostoma duodenale	Severe anemia, stomach pain, pale or yellowish skin allergy in respiratory tract.	cause faeces investigation. treatment mebendazole and albendazole iron (orally).	Disposal of urine and stool properly, avoid open defecation, maintain personal hygiene, don't walk with bare foot.
Tape worm Teniasis	Taenia solium pork Taenia saginata-beef	Intestines gets infected, loss of appetite, stomach pain, anemia	Albendazole	Pork should be properly cooked and eat

(d) Viral infections

Disease	Causative organism	Symptoms measures	Treatment	Preventive
Small pox	Virus	Eradicated completely	–	–
Influenza	Influenza virus	Fever, cough, headache, body pains	Symptomatic, antipyretic, analgesic	Vaccination for children and adults
Polio myelitis	Polio vaccine	Non paralytic symptoms pain in neck and back, paralysis contractions, fever Fever Sore throat Headache Vomiting Fatigue Back pain or stiffness Neck pain or stiffness, Pain or stiffness in the arms or legs, Muscle weakness or tender, Paralytic severe muscle weakness, loss of reflexes	Bed rest. painkillers. antispasmodic drugs to relax muscles. antibiotics for urinary tract **infections** portable ventilators help in breathing. **physical therapy** or corrective braces to help with walking. heating pads or warm towels to ease **muscle aches** and spasms	Vaccination O.P.V. for children upto 5 years of age **For paralytic persons physiotherapy**
AIDS	HIV virus	No specific symptoms found Rapid weight loss. Recurring fever or profuse night sweats. Extreme and unexplained tiredness. Prolonged swelling of the lymph glands in the armpits, groin, or neck. Diarrhea that lasts for more than a week. Sores of the mouth, anus, or genitals.	Symptomatic	Use treatment as prevention. Use post-exposure prophylaxis (PEP) if you've been exposed to HIV. Use a new condom every time you have sex. Consider preexposure prophylaxis (PrEP). Use fresh needle which should be disposed after use.

			Preventive Measures	
Measles	Measles virus	High fever, running nose, cough, watery eyes, diarrhea, small rashes all over the body, Little spots inside the mouth look like a tiny grains of white sand, surrounded by a red ring.weight loss, weakness.	Symptomatic treatment. No role of antibiotics. only paracetamol can be use for fever.	Isolation Inform to health officer, disinfect room and clothes, antibiotics to prevent secondary infections, vaccination to all children at the age of 9 months.

(e) Fungus

Disease	Causative organism	Symptoms measures	Treatment	Preventive
Aspergillosis aspergillus	Aspergillus	Cough with sputum, chest pain	Hamycin Anti fungal therapy	Try to avoid places where aspergillus mould is often wear found a face mask in dusty places.proper dry clothes should be worn.

WHAT YOU HAVE LEARNT

In this lesson you have learnt in detail about various causes of the disease and their preventive measures. You have also learned about controlling diseases by immunization and by fulfilling deficiencies. We have also discussed about controlling spread of diseases from patient to other persons in the hospitals as well as discussed about importance of personal hygiene.

TERMINAL EXERCISE

1. Write about immunity against 6 diseases as per WHO?
2. What are the specific preventive measures adopted in the hospital?
3. What do you understand by personal hygiene? Write down about eye care.

ANSWERS TO INTEXT QUESTIONS

3.1

1. Condom
2. Shoes
3. Gloves
4. Disease

3.2

1. Normal functioning
2. Two
3. Third

3.3

1. (iv)
2. (vi)
3. (i)
4. (ii)
5. (iii)
6. (v)

4

FIRST AID

Everyone has to face some medical emergency conditions during their respective life span. In such conditions if they can get proper treatment, there will be minimal physical damage and often saves their life as well. Such life saving process of management is called First Aid. This method cannot get rid of the problem or disease but it can reduce its effect. This means it is not the cure of the disease but if first aid is provided within time after accident, it can save life.

Fig. 4.1: First aid Kit

First aid is so important that its knowledge is necessary for all the students in schools. With the help of this chapter we can make our health worker in to an accomplished first aid provider who not only can save the life of many people but also give information and training to the common man regarding primary health care so that they are capable in providing first aid.

The objective of First Aid:

1. Save the life.
2. Reduce the pain.
3. Helpful in providing immediate help to the patient.
4. Prevent the victim's condition from worsening
5. Prevent the damage of different organs of the body.

Fig. 4.2: Pulse examination with the tip of the fingers

OBJECTIVES

After studying this lesson, you will be able to:

- know and provide first aid in medical and surgical emergency;
- know and provide first aid in emergency with the help of sign and symptoms present;
- provide safe life by providing first aid in emergency conditions;
- understand various condition presenting an example of treatment;
- understand the vital parameters of the body.

4.1 GENERAL AND NECESSARY INFORMATION

Management in emergency condition is a complex process. Hence, for a first aid provider it is essential to have some basic knowledge that helps him/her to provide treatment easily. These things (measure) are – height, weight, pulse rate, blood pressure, respiration rate and temperature of the person. It is important to know about the measures mentioned above. During the time of disease or accident any irregularity in these measures creates inequity in the life of patient and if this irregularity is ignored the situation may become deteriorate and can even lead to death of the patient.

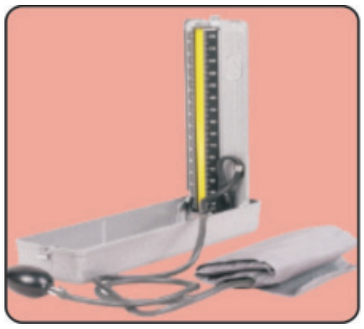


Fig. 4.3: Blood pressure measuring instrument

Weight

1. Every patient should be weighed- without shoes and in light weight cloths.
2. If possible measure the height with the help of the scale.
3. Observe the table below and scale that person is proportionate or fat (overweight) or thin (underweight).This is essential for the treatment.

Table 4.1: Weight-height ratio

	Age Group	Weight		Height	
		(kg)	(pound)	(cm)	(inch)
Baby	0.0-0.5	6	13	60	24
	0.5-10	9	20	71	28
Children	1-3	13	29	90	35
	4-6	20	44	112	44
7-10 year	28	62	132	52	
Male	11-14	45	99	157	62
	15-18	66	145	176	69
	19-22	70	154	177	70
	23-50	70	154	178	70
	51+	70	154	178	70
Female	11-14	46	101	157	62
	15-18	55	120	163	64
	19-22	55	120	163	64
	23-50	55	120	163	64
	51+	55	120	163	64

Blood Pressure

Blood pressure of a person is vital in treatment. it is measured with the help of sphygmomanometer. In this we wrap the cuff of rubber around the arm then increase its pressure with the help of a pump and observed over mercury scale. Now we feel the decreased pressure on the brachial artery with the Stethoscope. The point of the scale, where the **sound first heard** is called as **Systolic pressure** and the point where the **sound muffles**/closed down

Fig. 4.4: Measuring Blood pressure

is called **Diastolic pressure**. Sphygmomanometer and procedure of measuring blood pressure is shown in Fig. 4.4.

Temperature

In many people high fever is the important indication for alarming situation. Fever is measured with the help of thermometer. In each thermometer range scale is 95°F to108°F. The accurate measure of fever is very helpful in the treatment.

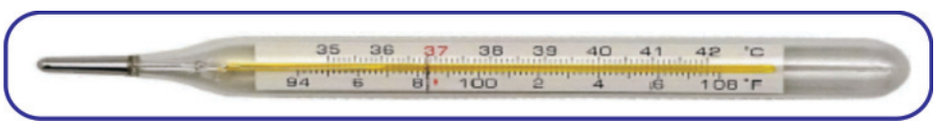


Fig. 4.5: Clinical Thermometer

Pulse-rate

Pulse-rate plays an important role in diagnosis and treatment of the disease. The contraction of heart can be felt as pulse. Pulse rate is the number of heart beats per minute. Generally this is normal but in abnormal conditions it can be high 100/min or low less 50/min and irregular too.

Pulse can felt over radial artery in the wrist. This is called radial pulse. Besides this we can easily feel femoral artery in the thigh, carotid pulse on the neck, brachial pulse on the anterior aspect of the elbow and dorsal pedis artery pulse on the foot. In emergency condition if radial pulse not palpable, then switch to other arteries.

Respiration

The rate of respiration means breathing per minute. Respiration shows the internal condition in emergency. This helps in the treatment.

4.2 EMERGENCY CONDITIONS

Now we discuss few emergency conditions in which first aid is helpful to save the life.

4.2.1 Shock

Shock is a condition which may occur due to sudden injury or internal breeding. In this situation blood pressure decreases, pulse rate and heart rate increases. The skin becomes pale, cool, sweating and clammy. If the condition remains untreated, this can even lead to death.

Notes

Symptoms

(a) Low blood pressure and systolic blood pressure is less than 90.

(b) Increased Heart rate (tachycardia) and pulse rate.

(c) Pale skin.

(d) Cool clammy skin due to profuse sweating.

(e) Rapid breathing (tachypnoea).

(f) Contraction in Peripheral blood vessels.

(g) Altered sensation resulting in unconsciousness.

(h) Nausea or vomiting tendency.

Causes and Types of Shock

1. Haemorrhagic shock occurs due to excessive bleeding/blood loss, internal haemorrhage caused by trauma, gastrointestinal bleeding due to rupture peptic ulcer and external bleeding due to injury.
2. Hypovolemic shock due to water loss from vomiting and diarrhoea.
3. Shock may occur due to severe acute pancreatitis.
4. Cardiogenic shock include cardiac muscle inactivity or arrhythmic.
5. Septic shock and endotoxin shock results from an infection.
6. Neurogenic shock caused by trauma or injury to the spine.
7. Besides these, many other types of shock are there. For example: electric shock.

Role of Health Worker in First Aid

1. Elevate the legs for better circulation, which helps to provides more blood towards the heart.
2. Provide oxygen to the patient with the help of face mask.
3. Dextrose normal saline and ringer's lactate solutions are infuse by injection into a veins.
4. Plasma expander is used due to lack of blood transfusion in case of internal bleeding.
5. Check and monitor the heart rate, pulse rate, blood pressure, blood-glucose and blood – urea level in the body.
6. Find out the cause of shock and start giving treatment accordingly.
7. Take or send the patient to the hospital as early as possible.

4.2.2 Electric Shock

An Electric shock occurs when a person comes into contact with an electrical energy source. Electrical energy flows through the body causing a shock. This shock often occur accidently. This shock simultaneously affects our Nervous system, Heart and Respiration system respectively.

Role of Health Worker in First Aid

1. Separate the person from electrical source with the help of any object which is insulator of electricity e.g. wood. Try to switch of main power supply.
2. Give mouth to mouth breathing support which is method of artificial respiration and try to maintain blood pressure with the help of 5% Dextrose saline and Ringer lactate.
3. Make an arrangement to send the patient to the nearest hospital as early as possible.

4.2.3 Hypothermia

Hypothermia is a potentially dangerous drop in body temperature, usually caused by prolonged exposure to cold temperature (below $0^{o)}$ in winter. Infants and elder are especially at risk for hypothermia. If the body temperature keeps falling, the organ begins to fail, and eventually, it may result in death.

Symptom

1. Fatigue and Drowsiness
2. Shivering
3. Weak pulse
4. Shallow, slow breathing
5. If untreated, this can even lead to death

Role of Health Worker in First Aid

1. Remove wet clothing.
2. Move the person to a warm, dry shelter e.g. near heater as soon as possible.

3. Cover the person with the blankets
4. Put hot water bottle/bag or heating pad below foot and give heat.
5. Give warm fluids e.g. hot water, tea, coffee etc.
6. If still not getting relief relief then send the patient to the hospital as early as possible.

4.2.4 Chill-Blens or Frostbite

During winter when temperature drops to 0°C or below 0°C, the part of body exposed to such cold waves, causes redness, itching and inflammation on the hands and feet and this condition is called Chill-blens. If this is not treated on time then condition becomes more severe. In extreme cold conditions when the body is exposed to cold for long periods this can reduce blood flow in some part of the body. In severe cases of frostbite, the skin can turn blue (Cyanosis) because of tissue injury. Frostbite can also lead to dry gangrene. If the treatment is not given properly for gangrene the affected part of the body may undergo amputation.

Role of Health Worker in First Aid

1. Get the person to a warm place e.g. near heater or bonfire.
2. Put hands and feet in to warm water to provide heat (water should not be too hot).
3. After giving heat, cover the body with a blanket.
4. Send the patient to the nearest hospital as early as possible for further management.

4.2.5 Anaphylaxis

Anaphylaxis is a serious, life-threatening allergic reaction by exposure to allergen (foreign substance). The most common anaphylactic reactions are to food, dust, bee sting, scorpion sting, medications and other allergic substances. Following are the allergic reaction symptom

1. Fall in blood pressure.
2. Difficulty in Breathing.

3. Urticarial rashes.
4. Difficulty in speaking.
5. Semiconscious - unconscious.

Several medicines show the symptom of Anaphylaxis in few person. Sign and symptoms of a serious drug allergy often occur within half an hour to an hour after taking a drug. But immediate allergic reaction symptom can be seen after insect or bee sting and after giving any injection.

Agents of Anaphylaxis

Medicines

Penicillin, Ampicillin, Amoxicillin, Drugs of sulpha group, Tetracycline, NSAID medicines-Diclofenac, Aceclofenac etc. Medicine used in anaesthesia-lignocaine, Bupinacaine etc., Injection of vitamin-$B_{1,}$ $B_{6,}$ $B_{12,}$Triple antigen, Iodinated radiographic agent and many hormones as Bovine insulin etc.

Other things

Varities of fishes like prawn, pollen, dust, mites, web made by spider, insect, bee, wasp, jellyfish, and scorpion poison can also become agents of Andphylaxis. Then some people have allergy from milk and egg too.

Role of Health Worker in First Aid

Allergic reactions may be life threatening. In severe cases, untreated anaphylaxis can even lead to death. Hence, this is a very serious condition and requires immediate treatment.

1. Immediately give Avil or some other anti-allergic tablets.
2. Send the patient to the nearest hospital immediately after providing him (oxygen) respiratory support.
3. In situation of low blood pressure administration of Dextrose saline or Ringer lactate may be given as initial therapy.
4. Hydrocortisone and Dexamethasone injections are used to treat severe allergic reaction in critical cases.

INTEXT QUESTIONS 4.1

Match the following:

(A)		(B)	
1.	Pulse rate	(i)	Avil
2.	Shock	(ii)	Redness in hand and feet
3.	Frostbite	(iii)	Over radial Artery
4.	Anaphylaxis	(iv)	Bleeding in abdomen

4.2.6 Foreign Body in Trachea

This situation is often seen in infants and toddlers. Children sometimes keep small objects in their mouth while playing e.g.-coins, small toys, rocks, stone objects, seeds etc. These small objects accidently enters into trachea and creates a medical emergency by producing-

1. Dyspnoea (difficult or laboured breathing)
2. Coughing
3. An (Hiss like) abnormal sound while breathing. This is a sign of medical emergency and needs immediate treatment.

Role of Health Worker in First Aid

1. If child is infant keep him in upside down position and tap over his back. Most of the time the foreign body comes out.
2. If child is a grown-up and cannot be put in upside down position, then put him in forward bending position and wrap your arms around patient's chest. Give some pressure with both the hands on to the chest and back to evacuate the foreign object.
3. Use Heimlich maneuver technique to remove foreign object.

Heimlich Maneuver

This method is used in Toddlers and gwown up children. The steps are as follows:

1. Get the person to stand up. Position yourself behind the person. Place your arms around their waist.

2. Make a fist and place it just above the navel, thumb side in.
3. Grab the fist with your other hand and push it inward and upward at the same time.
4. Avoid placing your hand on sternum as it may lead to damage to internal organs.
5. Repeat the entire process 5-7 times.

The above mention procedures certainly help to expel foreign object from trachea. If these steps fail then immediately take the patient to hospital, where doctors can manage the situation and try to expel the object with the help of Laryngoscope and other instruments.

4.2.7 Dog Bite

Rabies symptom can develop after few days if a person bitten by a dog infected with rabies virus. This symptom can also develop after bite of infected cat, fox, bear, monkey, wolf and bat. If patient is not treated or vaccinated immediately after dog bite, it develops rabies disease.

Fig. 4.6: Dog Bite

Symptom

A. In animals

(a) **Extreme behavioural changes**: it shows unnecessary and unexpected restlessness and aggressive behaviour.

(b) **Aggressiveness**: Suddenly it becomes aggressive and ready to attack on anyone without any reason.

(c) **Hyper salivation**: Excessive salivation from the mouth and he is unable to eat and drink.

(d) Animal die within 10 days after showing unnatural behaviour.

B. In Human

(a) Patient is unnecessary excited due to disturbance in the nervous system.

(b) Difficulty in swallowing due to thickness in saliva.

(c) Hydrophobia – Fear and avoidance of water.

(d) Recurrent convulsions and paralysis – cause of death.

Point to be noted that the saliva, urine and sweat of the infected person may contains rabies virus. Don't come in contact with milk etc. of the infected animal. Never give mouth to mouth breathing support to a rabies infected patient.

Role of Health Workers in Primary Health Care

1. If possible keep the bite animal in a separate cage.
2. Wash the wound with soap-water and clean it with hydrogen peroxide carefully then apply some antiseptic cream or lotion.
3. Keep the wound open and don't get tie or stitch, because viruses may spread rapidly in stitched wound.
4. After the primary care take the person to the hospital so that anti-rabies vaccination can be given as early as possible.
5. The bite animal usually dies within10-14 day after biting. Anti-rabies treatment must be given, whether the animal dies or not.
6. Remember complete anti-rabies treatment must be given because a chance of death is hundred present once the symptoms of rabies appear, so prevention is the key to management.

Fig. 4.7: Constrictive bandage to prevent damage

Fig. 4.8: Bandaging of a wound

4.2.8 Ear Ache

Ear ache usually occurs due to infection of the ear.

In External ear: Any wound or simply wax can be the cause of pain in the ear. The patient may complain for pain, itching, redness in ear, tenderness and impaired hearing.

Role of Health Workers in Primary Health Care

1. For pain Paracetamol tablet can be given, that can reduce the pain.
2. If patient develops fever or any purulent discharge is there, then refer to the doctor.
3. Wax dissolving drugs (Ceruclean or Waxsol) can be used to extract wax from the ear.
4. If wax cannot be extracted then doctor can do Syringing or clear the wax with some other instruments.

Don'ts for a Health Worker

1. If patient complains for any purulent discharge, don't treat the patient yourself.
2. Never put Boro-glycerine or Hydrogen peroxide (H_2O_2) solution in the ear.

Points to Remember

1. Always start treatment with the advice of a specialist doctor.
2. Delay in treatment can leads to serious infection that can reach up to the brain.
3. Never feed your baby in laying down position with bottle, as milk can go to the nose and ear which can cause infection.
4. Advice the children with cold to avoid too much pressure and strain while sneezing.

4.2.9 Foreign Body in the Ear

Whenever any foreign body like grain, seed, insect or mosquito enters in the ear it creates problem. It gives the symptom of ear ache, dizziness and problem in hearing.

Role of Health Workers in Primary Health Care

1. Pull pinna and tilt head in the downward direction helps in the removal of the foreign body.
2. Throw light with torch, living insect might come out with light. Try to float the insect out by pouring warm coconut oil into the ear.

Things to Remember

1. Do not use any sharp objects to remove foreign body in the ear.
2. Do not clean the ear with a match-stick.
3. Seek medical attention if foreign body cannot be removed with first aid and refer to nearest hospital for further management by expert physician.

4.2.10 Bleeding from Wound

Sometime cut injuries can result in bleeding. If it is not easily managed then first aid should be given by primary health worker.

1. Elevate the affected area.
2. Apply direct pressure on the cut or wound with a sterile bandage or clean cloth until bleeding stops.
3. If all the methods of bleeding control have failed then we use cloth wrapped around and above the wound. If possible using a constrictive bandage/ tourniquet for severe bleeding.
4. If the wound is on the arm or leg, raise the limb in upward direction.

Things to Remember

1. Do not wrap the wound so tight that obstruct the blood flow and skin turn blue.
2. Never use a thick rope, wire or string.
3. Loosen the tourniquet every half hour or so to see if it is still needed. If bleeding not stops wrap the wound again and refer it to hospital for better treatment. Generally bleeding stops within 5 to 6 minutes.
4. Do not use cow dung or soil to stop the bleeding.

INTEXT QUESTIONS 4.2

Fill in the blanks:

1. Do not insert any ..... objects in the ear.
2. If child is big use ..... technique to remove foreign object in trachea.
3. To stop the bleeding from wound we should use ..... bandage.
4. After dog bite ..... vaccine injection should be taken immediately.
5. To reduce the pain in the ear ..... tablet can be given.

4.2.11 Foreign Body in the Nose

Sometime children insert clay, grain, horse gram, pea or kidney beans etc., in the nose. Due to presence of foreign body, there can be complain of continuing white mucosal discharge from the nose. This ultimately turns in to yellowish colour when gets infected due to obstruction by foreign body. The skin under the nose may become raw rash with faint yellow, crusty material over it. This causes foul odour and pain in the nose.

Role of Health Workers in Primary Health Care

1. If child is a grown up then ask him to exhale air forcefully or to sneeze with much force.
2. If child is infant and object has got deeper in the nose then take the child to the hospital immediately for proper medical treatment.

4.2.12 Bleeding from the Nose

Usually these are the common causes for bleeding from the nose:

1. Injury in the nose while nose picking.
2. Pimple in the nose.
3. Injury/wound in nasal septum.
4. Ruptured nasal blood vessels due to hypertension (high blood pressure).

Role of Health Workers in Primary Health Care

1. Ask the patient to stay calm.
2. Squeeze the soft part of the nose for five minutes by pressing the nostril.
3. Apply ice cube externally over nose and pour cold water over the head.
4. Put gauze piece dipped in Vaseline for nasal packing and again squeeze the soft part of nose.
5. Refer the patient to the hospital.

Steps to be followed to use Eye, Ear and Nasal Drops

A. Steps of using Ear drops

1. Keep the head tilted or lie down on your side showing affected ear upside.
2. Pull the ear pinna backward and upward so that ear canal can be visible.
3. Apply the correct number of drops in the ear as prescribed by the doctor.

Fig. 4.9: Steps of using Ear Drops

4. Remain in position for five minute to allow ear drops to act and then turn.
5. Place cotton ball gently inside the ear for packing only if it is advised by the by the medical prescriber to do so.
6. The oil applied in the ear should not be too hot.
7. Do not use the ear drop after 15 days of opening.

Steps for putting in Eye Drops

1. Wash your hands thoroughly with soap and water.
2. Avoid touching dropper tip.
3. Tell the person to look upward.
4. Pull down the lower lid of the eye to form a pocket.
5. Hold the dropper with the other hand as close to the eye as possible without touching it.
6. Drop the required number of drops into the pocket made by the lower eye lid.
7. Close the eye for two minutes. Try not to blink or squeeze the eyelids tightly shut
8. Wipe any excess liquid from the tissue paper.
9. If you are to use more than one eye drop in the same eye, wait at least 5 minutes, before using the next eye drop.
10. Eye drop gives a burning feeling in the eyes but this burning should not be more then few minutes otherwise contact the doctor

Things to remember during using Eye Drops in Children

1. Lay the child on his back on a flat surface.
2. The eyes of child should be closed.
3. Apply the eye drop in required amount in the inner corner of eye.
4. Head of the child should be straight.
5. Wipe away any excess liquid.

Administration of Nasal drops to Kids

1. Ask the child blow his nose to clear the nasal passage.
2. Ask the child to sit or lie down straight and support his head using the pillow. Guide the child to tilt his head backward.
3. Carefully place the dropper 1 cm inside the nostril and gently squeeze the medicine into the nose.

Notes

4.2.13 Internal Haemorrhage

Internal Haemorrhage is also called concealed Haemorrhage, because bleeding cannot be seen on the outside of the body. The internal bleeding may occur in organs e.g. intestine, stomach, liver, spleen, kidney etc. Internal Haemorrhage often seen as bleeding from urine, stool and uterine bleeding. Whenever the internal Haemorrhage is suspected then look for the following sign and symptoms:

1. The blood coming out is having light yellowish or yellow colour.
2. Cold and sweaty skin.
3. Extreme thirst.
4. Feeling of dizziness and fainting.
5. Restlessness.
6. Rapid and weak pulse.
7. Yawing while breathing.
8. Unconsciousness.
9. Black colour stool (Melena)

Causes

Traumatic abdominal injury, peptic ulcer, renal stone etc...

Role of Health Workers in Primary Health Care

Person should be laid down in elevated legs position, so that the blood supply is more towards vital organs e.g. heart, lungs and liver. If it is not G.I. tract bleeding then give assurance to patient and give him hot milk and tea to drink.

4.3 BANDAGES

Bandages can be of two types:

1. Roller Bandages
2. Triangular Bandages

1. **Roller Bandages:** It is made up of thick cotton fabric having different width as ½", 1", and 2" and usually these bandages are used for different types of cuts, injuries and wounds by the health workers.

Fig. 4.10: Roller bandage used for legs

2. **Triangular Bandages:** A triangular bandage is made up of a strong type of 1 meter square cloth which has been cut in to a right-angle triangle. The triangle can be folded down in to a cravat. While bandaging always use reef knot which never slip unlike a granny knot which can slip. A triangular bandage can be used as primary bandage or as an arm sling.

Fig. 4.11: Triangular bandages used for arm-sling

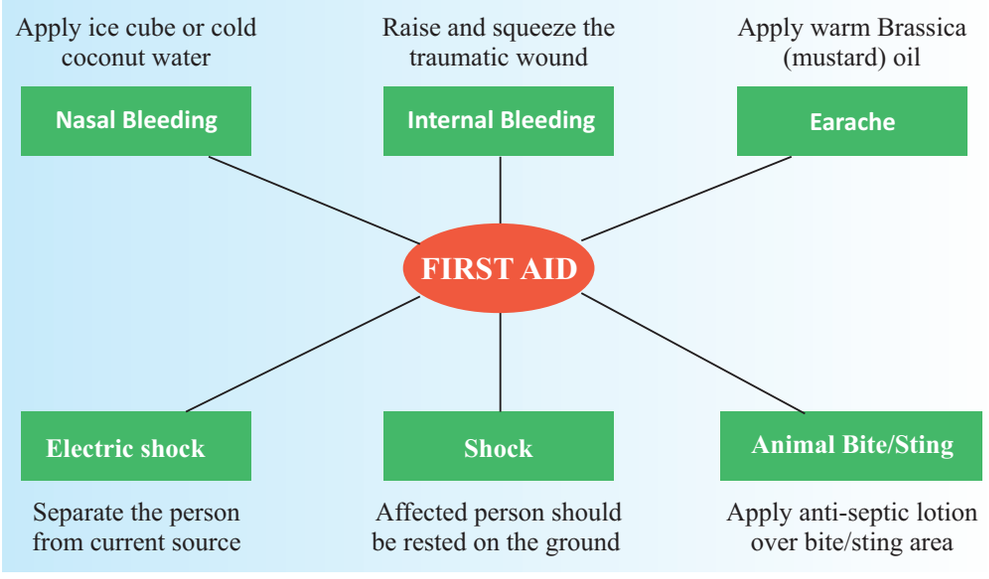
INTEXT QUESTIONS 4.3

Mark True (√) or False (×) in front of following sentences:

1. Squeeze the soft part of the nose for five minutes by pressing the nostril to stop the bleeding from the nose. ( )
2. Ear drops can be used for 2 months after opening. ( )
3. The eyes should be closed for two minutes after using eye drops. ( )
4. Traumatic abdominal injury and peptic ulcer can be the cause of internal bleeding. ( )
5. A roller bandage can be used as an arm sling. ( )

WHAT YOU HAVE LEARNT

In this chapter you have learned about saving the human life by providing primary health care within time. On the basis of sign and symptoms you also came to know that when and where the primary care is required. Primary health care helps by preventing the situations to became more serious.



First Aid Box

• Small plastic Bowl	To clean the cut/injured part of body.
• Cotton	To be used with gauze in wound dressing.
• Sterilized dressing	To be applied over wound
• Roller Bandage	To fix the dressing area.
• Magnifying glass	To identify the splinters.
• Tweezers	Can be used to remove splinters.
• Glucose	To be given in emergency condition.
• Band-aids	Used for small abrasions and cut injuries.
• Scissor	Used to cut the bandage.
• Safety pin	To be used with bandages.
• Tissue paper	To remove the dust from the wound.
• Bandage	Applied with cotton over the wound.
• Burnol	For burn injuries.
• Potassium permanganate (red-medicine)	Applied over wound.
• Dettol	To clean the wound.
• Splints	To support the fractured bone.
• Tourniquet	Use to stop bleeding.
• Soap	For hand wash and cleaning purpose.
• Blade	For making incision /cut any object.

TERMINAL QUESTIONS

1. What is hypothermia? Describe its symptoms and management.
2. Discuss about steps used for putting eye drops.
3. Discuss about the things to be kept in a first-aid box by a health worker and their significance.

4. What is internal Haemorrhage?

5. Compare the two types of bandage.

ANSWERS TO INTEXT QUESTIONS

4.1

1. (iii) 2. (iv) 3. (ii) 4. (i)

4.2

1. Sharp/pointed
2. Heimlich maneuver
3. Contraction
4. Anti-rabies
5. Paracetamol

4.3

1. Right
2. Wrong
3. Right
4. Right
5. Wrong

5

LIFE STYLE DISEASES

The meaning of life style is 'the way we live our life'. This depends upon many things such as our cultural environment, nature of job – physical working or being sedentary, eating habits, drinking and smoking habit, our behaviour with parents and neighbours, school education and school environment, television, newspaper, internet, media, our economic status, and all our other habits build up our life style.

If we want to stay healthy then we should build a healthy lifestyle around us. We have come to know from various researches and studies that there is close relationship between our health and our lifestyle. You probably don't know that asthma, increasing incidences of heart attack, oral, intestinal and liver cancer, obesity, disease of lungs, rheumatic arthritis, osteoarthritis etc. are the examples of diseases which are caused due to adoption of poor lifestyle. Now-a-days very young people are becoming victims of heart disease and cancer and are reaching to the verge of death. Lifestyle diseases are non-communicable diseases.

We should think about how to prevent or avoid the diseases which affect our lifestyle. We may ponder which diseases affect our lifestyle and what changes should we add in our lifestyle to prevent these specific disease? We will try to find out the answers to these questions in this lesson.

OBJECTIVES

After studying this lesson, you will be able to:

- identify and enlist diseases arising from irregular life style;
- identify symptoms of various life-style diseases;
- enlist various factors influencing these diseases;

Notes

- make suitable changes in lifestyle for prevention of these diseases;
- give proper suggestions for the prevention of diseases.

Now, let's discuss some such common diseases in detail:

5.1 CORONARY HEART DISEASE

There are so many diseases which occur due to hectic life style or due to change of surroundings or changing life styles, with which our body is not able to make equilibrium or balance. In this process of inequillibrium, our heart arteries become progressively narrow which is very fatal. In our arteries a layer of fat and cholesterol gets deposited on the artery walls gradually and elasticity of the arteries decreases and they become stiff and narrow. This is called atherosclerosis. This process happens very fast among people with high blood pressure and diabetes and also increases continuously with the increase in the age.

1. Let's understand this as an obstruction arises in our coronary arteries, due to which heart function gets interrupted which may later appears as heart attack. This is deeply related with our inbalanced lifestyle and psychological stress.

2. In heart diseases especially in cardio vascular diseases, heart contraction loses its regularity, due to which arrhythmia arises and heart rate does not remain normal. We came to know about the causes and risk factors of heart diseases from researches of various research institutes. We will discuss this in this lesson but before that we should know that these factors are of two types– some in which changes can be brought with change in our life style and some in which no changes can be brought.

Changeable or Modifiable Factors

Smoking, alcohol, high blood pressure, high level of cholesterol, diabetes, obesity, lack of physical activity, increasing mental stress are all those factors in which we can bring about change by our will power and changes in lifestyle.

Immutable or Unchangeable Factors

There are some few factors which we cannot change at our will like growing age, sex, family crisis and genetic effect. Now let us know about these factors in detail:

1. **Smoking**: It is the second main cause for the occurrence of coronary artery in a very young age. The process of arteriosclerosis becomes more intense

through smoking. This is mainly responsible in 25% cases of heart attack occurring under 65 years of age.

2. **High Blood Pressure**: Various types of complexities occur in coronary vessels due to high blood pressure.

3. **High Cholesterol in the Blood:** The increase of cholesterol in the blood also increases the risk of heart attack, especially if increase is in LDL and VLDL (low density lipoprotein and very low density lipoprotein). Although high density lipoprotein (HDL) decreases the probability of heart attack. Keeping ratio of cholesterol and HDL below 3.5 decreases the risk of coronary heart disease.

4. **Diabetes:** In diabetic patients, there is 3 times more risk of heart attack than normal. Statistics of developed countries show that 30%-40% patients of diabetes of age more than 40 years die due to heart attack only.

5. **Obesity:** Various studies show that there is three to four times more risk of coronary artery disease in obese females (males too). If the per kg weight of a person is more than the standard weight of the body, the risk of heart attack increases by 4 times.

6. **Lack of Physical Activity:** With the advancement of science and technology, physical work is reduced and our life style has become sedentary. We do less physical activity due to which risk of obesity, high blood pressure and heart attack has increases. By doing physical activity and exercise, LDL and HDL in our body gets decreased and increased respectively which also reduces the risk of heart attack.

7. **Stress:** It has been seen that persons who are anxious, have low patience, who are aggressive and who expect quick results, suffers more from coronary heart disease. Other than this excessive physical work and insomnia are also the supporting factors. In comparison to these, people with calm and simple life are seen less affected.

Prevention of Coronary Heart Disease (CHD)

1. Change in Diet:

   (a) Use less fat in your diet especially saturated fat because it has high cholesterol level in it.

   (b) Increase intake of fibre products (fruits, vegetables, cereals with husk and beans) in your diet.

(c) Do not consume alcohol.

(d) Do not take more than 5 grams of salt per day in your diet.

(e) If person is diabetic, control blood sugar levels through restricted diet, medicine and physical work.

2. **Smoking**: We should not smoke or encourage others to smoke. One should know that risk of passive smoking is also equal to active smoking.

3. **High Blood Pressure-** Our studies show that high blood pressure creates many complications in heart diseases. If the average blood pressure can be reduced a little, then many complications of heart diseases can be avoided. For this we:

   - should use less amount of salt.
   - should avoid alcohol.
   - should reduce body weight.
   - should take medicines regularly according to physician's advice.

4. **Physical Activity:** Regular physical activity or exercise should be included in our daily routine. It is helpful in controlling obesity, blood pressure, cholesterol level and diabetes.

INTEXT QUESTIONS 5.1

Write True or False against the following:

1. Life style diseases are result of inappropriate relations of people with their environment. ( )
2. Life style diseases are communicable. ( )
3. Primary risk factors for coronary heart disease are- high blood pressure, smoking, obesity and diabetes. ( )
4. Lack of physical exercise is related with coronary heart disease. ( )
5. Increased level of high density lipoprotein (HDL) increases risk of coronary heart disease. ( )

5.2 HYPERTENSION

Hypertension means - high blood pressure in our arteries. The blood vessels from our heart come out which makes the blood reach our tissues at a certain pressure. Normally, this pressure remains at 120/80 mmHg, which is considered as normal. Above than this i.e., 140/90 mm of Hg is called as high blood pressure. Blood pressure above 150/90 mm of Hg is considered as hypertension. In this, the numerator denotes 'systolic pressure' and denominator denotes 'diastolic pressure'. Systolic pressure is the pressure present in arteries at the time of heart contraction while diastolic pressure is the pressure during the time of heart relaxation.

Classification

1. Essential Hypertension

When the cause is unknown of high blood pressure, then it is known as primary or essential hypertension. 80-90 percent cases of hypertension come under this category.

2. Secondary Hypertension

When hypertension occurs in response of any other disease or due to any definite cause, it is known as secondary hypertension.

Prevalence

Blood pressure is more prevalent in 25% of adults in industrialized countries. In cities about 60 out of 100 males and 70 out of 100 females are suffering from hypertension. On the other side, in villages its average is about 36 per cent in both sexes.

Complications arising from High Blood Pressure

Various complications arise due to high blood pressure:

(a) Stroke – Brain Haemorrhage
(b) Coronary Heart Disease (CHD)
(c) Heart Failure
(d) Kidney Failure
(e) Retinal Haemorrhage-Retinal narrowing

The higher the blood pressure, the higher are the complications. Often a person becomes victim of death.

Measurement of Blood Pressure

Blood pressure is measured by an instrument named Sphygmomanometer. This measures pressure in millimetre of mercury unit.

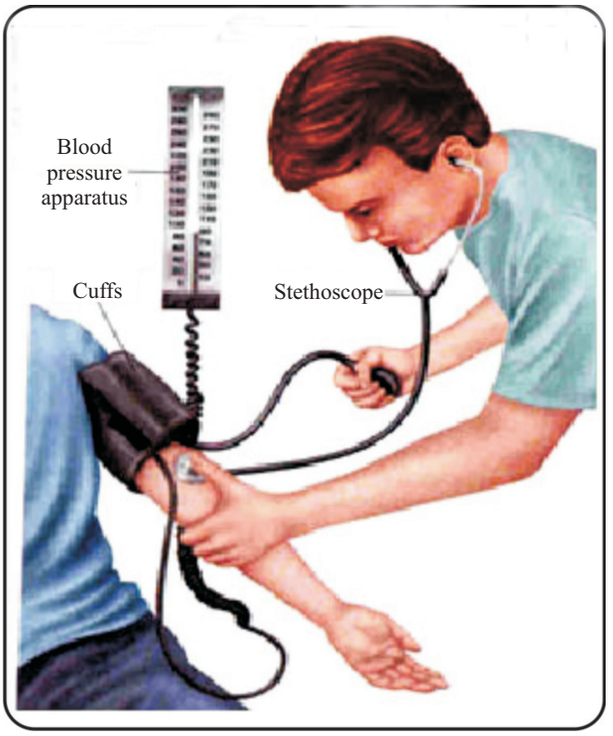


Fig. 5.1: Measurement of blood pressure by Sphygmomanometer

Supporting Factors of High Blood Pressure

(a) **Factors that can be changed**: Obesity, excessive salt intake, intake of saturated fat, intake of excess alcohol, absence of physical activity, family and working area related stress and factors.

(b) **Factors that cannot be reversed:** Age, sex, hereditary factors

Let's have some discussion on various factors

(a) **Obesity**: Our studies show that obesity is one of the major causes of high blood pressure. Gaining weight also increases the chances of high blood pressure.

(b) **Excessive Salt Intake:** Excessive intake of salt also increases hypertension proportionally. Low dose of sodium decreases blood pressure. Other minerals also influence blood pressure.

(c) **Saturated Fat:** Saturated fat has high amounts of cholesterol (LDL and VLDL) in it which is a risk factor for coronary heart disease, but risk of risk of high blood pressure also increases over time.

(d) **Alcohol:** It has been seen that excessive consumption of alcohol increases our systolic pressure.

(e) **Physical Activity:** Increased blood pressure has been observed in people who do less physical activity and lead sedentary lives. In contrast, normal blood pressure has been observed in those who work and exercise regularly.

(f) **Stress:** Mental stress, domestic and work pressure, increasing unnecessary needs and competition for attaining it, more excessive mental labour to pay: all these leads to stress which is a great factor to increase blood pressure.

(g) **Other factors**: Increased circulation of birth control pills and unnecessary intake of many other drugs are also factors in our high blood pressure.

It is necessary to have discussion on invariable factors also

(a) **Age:** With increasing age, increase in blood pressure is seen almost equally both in men and women.

(b) **Genetic factors**: It has been observed that genetic factors also influence blood pressure. With hereditary parents, these factors are transferred to their offspring. So far, we don't have any measure to stop these factors.

Prevention of Hypertension

By bringing changes in our life style we can control high blood pressure to a large extent. Lets see such measures one by one.

(a) **Regular exercise**: Daily exercise of 45 minutes to 1 hour e.g. - jogging, swimming, running, cycling can reduce blood pressure up to 5-15 percent.

Fig. 5.2: Skipping, Jogging, Yoga

(b) **Reducing weight:** Weight reduction helps in reducing blood pressure and coronary artery disease.

(c) **Yoga:** We can reduce stress and stop blood pressure at a large extent by doing yoga and meditation.

(d) **Change in diet:** We can prevent ourselves from high blood pressure to a great extent and can even control to some extent by bringing changes in our diet.

(i) Intake of less salt in diet.

(ii) Least use of saturated fats.

(iii) Avoid consumption of alcohol.

(iv) Take low calorie diet so as to reduce weight.

(e) Prohibition of smoking can also control high B.P.

(f) We can control blood pressure by giving health education to people and can bring improvement in their lifestyles, dietary habits and by this we can control blood pressure.

TEXT QUESTIONS 5.2

Fill in the blanks:

1. Hypertension means high blood pressure in .....
2. The risk factors of high blood pressure are ..... and .....
3. Two types of ..... and ..... Change in diet can avoid high blood pressure.
4. Blood pressure is measured by an instrument known as .....

5.3 PARALYSIS (STROKE)

Paralysis is a worldwide problem. Many people either die due to this or become victim of physical disability. Paralysis is caused by acute and severe blood pressure in the brain due to which disability condition occur on both mental and physical levels. According to World Health Organisation (WHO) paralysis is a sudden disruption in brain activities for 24 hours or more and symptoms arising from it. The patient can also die due to paralysis. In this condition, we don't find other

reason except interruption in the blood flow. The two main direct reasons for this are as follows:

(a) Cerebral Haemorrhage

(b) Cerebral Thrombosis

Possible Supporting Factors

1. **Hypertension:** In most of the hypertensive patients, cerebral haemorrhage becomes the only cause. But thrombosis may also be seen.
2. Smoking, alcohol, obesity, diabetes etc. are also its other supporting factors.
3. Prolonged use of contraceptive pills can also increase the possibility of paralysis.
4. Paralysis has also been observed more with increasing age. Males are seen more prone to paralysis than females.

In today's environment and lifestyle, incidence of paralysis has become more but it can be reduced through preventive measures.

Preventive Measures

For this we have to make positive changes in our lifestyle –

1. **Hypertension:** High blood pressure has to be controlled by medicines and by the above said methods.
2. **Diabetes:** Diabetic patients should control the blood sugar levels by medicines and by change in lifestyle as possibility of paralysis increases in diabetic patients.
3. Control on smoking and alcohol: It has been observed that people who smoke and drink alcohol regularly, become victim of both types of paralysis often. By controlling these habits, we can reduce the number of paralysis also.

5.4 DIABETES

Diabetes was once considered to be a disease of affluent class. But its increasing number in developing countries has changed the entire thinking. It is estimated that by the year 2025, the number will reach to 80 million in developing countries (South Asia). Industrial development and evolving socio-economic system have played an important role in increasing the number.

Diabetes means high quantity of sugar in blood. In our body, Beta Langerhans cells of pancreas secrete a hormone known as insulin, which plays a main role in metabolism of fats and amino acids. The condition diabetes arises due to impairment of insulin in its production and function.

Due to uncontrolled diabetes many parts of our body become sick and lethargic like – brain vessels, coronary vessels, kidney, eyes and psychosomatic disorders, disorders of vessels of hands and legs and neuro system etc.

1. Diabetes Mellitus
   (a) Insulin Dependent Diabetes Mellitus (IDDM or Type I)
   (b) Non-Insulin Dependent Diabetes Mellitus (NIDDM or Type II)
2. Bad Glucose Tolerance
3. Gestational Diabetes – Hormonal (Diabetes in pregnancy)

Causes of Diabetes

(a) Diseases in Pancreas, pancreatitis, pancreatic tumour

(b) Impairment in insulin production and secretion

(c) Hereditary causes

(d) Auto-immunity

(e) Viral infection

Factors Promoting Diabetes

1. **Age:** With increase in age, possibility of getting diabetes also increases.
2. **Sex:** It has been observed in males and females equally.
3. Probability of getting diabetes in children of diabetic parents increases many fold.
4. **Obesity:** Obesity is one of the main causes in NIDDM patient. Obesity interrupts insulin secretion and its function.
5. **Sedentary life style**: Blood sugar level rises in people who don't do any type of exercise or physical activity, thus resulting in diabetes.

6. Pancreatic cells of children who get victimised of malnutrition in childhood, gets malfunctioned and they do not secrete insulin in proper quantity and are more likely to become diabetic patients in later phases.

7. Excessive alcohol intake, infection from mumps, rubella etc. or chemicals present in our food products affects our body cells badly and all these are helpful in causing diabetes.

8. Those who eat more, live stressful lives and always engage in stimulating activities are also at increased risk of Type II diabetes.

Symptoms and Identification

There are three main symptoms which arises due to complications of DM (Diabetes Mellitus):

1. Polyphagia: Excessive eating

2. Polyurea: Excessive urination

3. Polydypsia: Excessive thirst

Some investigations which provide us facility in treatment:

1. In empty stomach blood glucose level should be in between 80-110mg/dl, above this is considered as diabetes.

2. The level of blood sugar should be less than 150mg/dl after two hours of meal.

3. HbA1C (Glycosylated Haemoglobin) – this should be less than 6; more than 6 is the sign of chronic elevation of sugar levels. If it increases, risk factor may be high.

Prevention of Diabetes

For prevention it is necessary to bring some positive changes in our food and life style. Let's discuss this one by one.

1. Modification in Diet

   (a) Decrease the food intake containing sugar and carbohydrates.

   (b) Reduce intake of saturated fats: it is adjuvant in causing diabetes.

(c) Take plenty of green leafy vegetables. These are full of fibre, vitamins and minerals. This helps in reducing the amount of fat and carbohydrates.

(d) By reduction in junk food, stored food, processed food, non-vegetarian food etc., we can easily control diabetes.

2. Modification in life style

(a) Daily exercise and physical work for 45-60 minutes helps in controlling diabetes and also keeps our body fit and healthy.

(b) We can also put good effect on diabetes along with high blood pressure and heart disease through yoga and meditation. Proper diet and adequate physical work help us a lot in controlling diabetes.

TEXT QUESTIONS 5.3

1. Match the following:

(a)	Stroke	1.	Increase in blood sugar level
(b)	Diabetes	2.	Controls metabolism of fat, glucose and amino acids
(c)	Insulin	3.	Glycosylated haemoglobin
(d)	Obesity	4.	Important risk factor of diabetes
(e)	HbA1C	5.	Physical and mental disability

5.5 OBESITY

Today obesity is spreading like an epidemic disease all over the world. The World Health Organisation (WHO) has declared it as a pandemic disease. There is abnormal accumulation of fat in obese person's body. Body weight more than 20% of ideal weight is considered as normal, 20-40% more is considered as medium grade and more than this is considered as severe obesity.

BMI (Body Mass Index) is considered as the index for this

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

Index of 25-29 is indicator of overweight while more than 30 is the indicator of obesity.

Causes of Obesity

1. **Consumption of Calories:** If we consume more calories than body's requirement, that calories gets accumulated in our adipose tissues in the form of fat.

2. **Consumption of fat:** If there is more quantity of saturated fat in our diet then, it directly gets accumulated into our adipose tissues without undergoing metabolic activities by which our body weight and circumference increases. This fat has character to expand its size.

3. **Sedentary life style:** People who adopts sedentary life-style, do not do physical work, obesity surrounds them fortuitously. This also increases chances of high blood pressure, cardiac attack and diabetes.

4. **Stressful life:** People who suffer more stress in life and lives soulless or with low spirit life, have negative attitude towards life and the environment, hence they quickly become obese.

Diseases caused by Obesity

1. **Type II Diabetes:** This usually starts in adults. This type of diabetes is often seen in obese people. People who have more fat depositions around abdomen and waist are more prone to diabetes. This type of obesity is called as central obesity. A person's body becomes unformed and apple like.

2. **High blood pressure:** Obese adults are more prone to high blood pressure. On increasing weight, increase in blood pressure has been observed more in females as compared to males.

3. High levels of cholesterol.

4. Stroke.

5. Heart attack.

6. Heart failure.

7. Cancer.

8. Cholelithiasis (stone in gall bladder).

9. Gouty arthritis.

10. Disturbance in menses: heavy flow or other irregularities.

Notes

11. Reduction in fertility and complications in pregnancy
12. Diseases of gums

All these diseases flourish more due to obesity. As a result obese people struggle more with these diseases.

Diagnosis

An ordinary man can easily identify an obese person by looking at him/her but can use BMI scale to facilitate medical data.

Methods of Prevention

1. Intake of less calorie food.
2. Consumption of low fat food especially saturated fats like ghee, butter.
3. Primacy of fiber rich, leafy vegetables, fruits, salad etc. in food.
4. According to your weight and height maintain a food diary with the help of dietician as when to eat; what to eat; how to eat and how much to eat?
5. Do not eat too much at one time especially at night. Eat small portions but frequently.
6. Physical work is to be increased, whether in the form of exercise or in any other form. Daily physical work of 45 minutes to 1 hour not only helps to check obesity but helps in decreasing also.
7. Stress and loneliness also increases obesity. To avoid it one should engage in some social activities and other such work.

5.6 CANCER

Today, though science has discovered many methods to treat cancer, people get scared to hear its name even today. Cancer is also manifesting in new forms in front of us mostly due to our life style irregularities.

Cancer means a disease in which our body cells begin to grow in uncontrolled and abnormal form. The figures in India tells that about 20-25 lakhs people are cancer patients, out of which half of them die every year. Therefore, it is necessary that we need to know about it and understand properly. So far, about 150 types of cancer has been seen.

Cancer status in India

The list of cancer usually found in males and females is given below:

S. No.	Males	Females
1.	Oral	Uterus
2.	Stomach	Breast
3.	Lungs	Oral
4.	Pancreas	Ovary

Studies show that lung cancer in men and breast cancer in women are more seen in Delhi and Mumbai cities in comparison to other cities of India.

Factors of Cancer

There are many factors which causes cancer, some of them are listed below:

1. **Tobacco:** By smoking or chewing tobacco. Harmful elements present in tobacco can leads to cancer of lungs, mouth, throat, and oesophagus.
2. Alcohol consumption can cause liver and oesophageal cancer.
3. Those foods in which color or any other adulteration substance are added and chemicals are mixed to prevent food from rotten, they can cause cancer in us. High fat diet becomes risk factor for breast cancer.
4. **Occupation**: There are so many occupations in which workers often fall prey to cancer like – workers working in benzene, arsenic, cadmium, chromium, asbestos factories.
5. **Viral Infection**: Researches show that many viruses play role in causing cancers like – EB virus, Hepatitis B and C virus.
6. Prolonged parasitical infection increases the possibility of bladder cancer.
7. Many other things like ultra violet rays of sun, radiation, continuous exposure to rays, polluted water and air, pesticide medicines – all these can cause cancer in long run.
8. Many practices if not followed properly can also cause cancer like chewing tobacco or betel, spicy food, walking by tying chafing dish on abdomen. Understand that anything which causes prolonged irritation on tissue particular is supportive in causing cancer.

Notes

Warning Signs of Cancer

1. Feeling of hardness in breast
2. Sudden increase in any mole
3. Sudden change in digestion or bowel habits
4. Often bleeding with fever
5. Heavy bleeding during menstruation
6. Loss in body weight without any specific reason

All these signs can become risk factors for cancer. With the help of physician, it is necessary to find them quickly and treat them as soon as possible.

Treatment

The best treatment is to identify the disease at the earliest and sending the patient at hospital. Only expert physicians can treat it properly.

Measures of Prevention

1. Stop consumption of tobacco and alcohol.
2. Stop use of junk and preserved food.
3. Consume more fruits and vegetables.
4. Use maximum amount of fibrous food, whole bean grains, whole pulses etc. All these food should be included in our daily dietary items.
5. Avoid taking high fat diet.
6. Contact a qualified doctor immediately, even if there is a little doubt. Early diagnosis and quick treatment is very useful in controlling the cancer.

INTEXT QUESTIONS 5.4

1. What is obesity?

   .....

2. Mention two health risks related to obesity.

   .....

3. What do you understand by the term Cancer?

.....

4. Mention two signs of cancer.

.....

Some important things regarding life style diseases:

1. Associated symptoms in early detection of life style diseases:

(a) Diabetes Mellitus

(i) Polyphagia

(ii) Polyurea

(iii) Polydypsia

(iv) Weight loss

(v) Delayed healing of wounds and abrasions

(b) Coronary Heart Disease

(i) Pain in chest while walking or climbing stairs

(ii) Anxiety and fear

(iii) Sweating during pain

(c) High blood pressure

(i) Headache and dizziness (heaviness in head)

(ii) Arrhythmia (fast or uncontrolled heart beat)

(iii) Breathlessness while working

(d) Stroke (Paralysis)

(i) Acute headache and vertigo

(ii) Vomiting or nausea

(iii) Weakening of either right or left side of the body

(e) Oral Cancer

(i) Non healing of mouth wound

(ii) Body weight loss

(f) Lung Cancer

(i) Hemoptysis (blood with mucus on coughing)

(ii) Frequent weight loss

(g) Breast Cancer

(i) Breast lump and pain with it

(ii) Blood coming with milk

(h) Uterus Cancer

(i) Irregular bleeding from vagina which is increasing gradually in spite of treatment.

(ii) Other type of discharge from vagina (stinking)

(i) Stomach Cancer

(i) Pain in upper part of stomach

(ii) Vomiting (with or without blood)

(iii) Continuously deficiency of blood

(iv) Irregularity in digestive system

All these are symptoms of some common diseases caused due to our life style. Many other symptoms can also be found due to complications arising from these. It is better to get it diagnosed by an expert physician.

Some common suggestions for healthy life style:

1. Wake up early in the morning and go to sleep on time.
2. Exercise everyday at least for 30-45 minutes after finishing daily routine.
3. Take food with less carbohydrate and easily digestible food.
4. Increase use of whole cereals, bread (roti) of bran flour, peeled pulses in the diet. Do not use polished cereal.
5. There should be plenty of green vegetables, leafy vegetables and fruits in the diet.
6. Avoid junk food and fatty substances, like – pizza, burger, French-fries, tinned food etc.

7. Do not eat any market food especially which is kept in open and there is no proper arrangements for covering.
8. Do not use soft drinks like Coca-Cola etc. Instead use lemon water, coconut water, fresh lassi, buttermilk etc.
9. Stop use of tobacco, gutka, betel etc.
10. Abstain from smoking and alcohol.
11. Make home and office environment calm and amiable.

WHAT HAVE YOU LEARNT

In this lesson we have learnt about the symptoms and prevention of life style diseases like coronary heart disease, cancer, high blood pressure, diabetes mellitus, obesity etc. occurring due to adopting bad/unhealthy life style. Along with methods to improve life style, we also discussed how to attain a healthy life style. This lesson will help you in identifying, preventing and treating the life style diseases.

TERMINAL QUESTIONS

1. What do you understand by life style diseases? Explain any two of them in detail.
2. Mention four risk factors related to Coronary Heart Disease (CHD).
3. Discuss the role of health worker in prevention of high blood pressure.
4. Mention four preventive measures of diabetes mellitus.
5. Explain four risk factors related to obesity.
6. Mention the probable symptoms of cancer.

ANSWERS TO INTEXT QUESTIONS

5.1

1. Right 2. Wrong 3. Right 4. Right 5. Wrong

Notes

5.2

1. Arteries
2. Obesity, excessive use of salt, saturated fat and alcohol
3. – Low intake of salt
   – Low intake of fats.
4. Sphygmomanometer

5.3

(a) 5 (b) 1 (c) 2 (d) 4 (e) 3

5.4

1. The presence of extra fat in the body is called as obesity.
2. Risk factors related to obesity are:
   (a) Type-II diabetes (NIDDM) (starts in adulthood)
   (b) High blood pressure
3. Cancer is a disease in which growth of cells occur uncontrolled and irregular form.
4. (i) Unspecified weight loss
   (ii) Change in size of mole.

Activities

1. Do prepare a questionnaire related to incidences of life style diseases. Conduct a survey in the community, collecting information from at least 10 households.

6

DRUG AND DRUG REACTIONS

Various medicines are used for treating different kind of diseases. These medicines cure the diseases by various actions. Medicines have their respective effects in killing micro-organisms like bacteria, virus, fungus, parasites etc. They are effective in controlling health concern like blood sugar levels, high blood pressure, and are also effective in managing heart related problems.

Changing food and lifestyle along with these medicines will help in controlling many dangerous health hazards.

The knowledge of indications and contra-indications of medicines and its dose is very essential. If medicine is given in right conditions then it's effects are like nectar and if the same medicine given in wrong condition, it may be fatal.

Sometimes the same medicine may give fruitful results to one person, but for the other, it may cause adverse reactions or allergies. Apart from this certain medicines are beneficial in treating a particular disease.

In this lesson, we will learn about medicines, their properties, side effects, drug reaction, indications and contra-indications, and their action of work.

OBJECTIVES

After studying this lesson, you will be able to:

- various medicines, their correct dose and right indication;
- how medicines given in proper dosage will be beneficial for the body;

Notes

- precautions to be taken before and after medicines and how to manage the adverse drug reactions;
- first aid treatment for adverse drug reaction and further referring the patient to the hospital.

6.1 WHAT IS PHARMACY?

The medicines which we use in practise are from different sources: some medicines/drugs are extracted from mineral sources, some from animal sources and some medicines are from plant sources. In allopath or modern system of medicine, the drug is used in its pure active form, formed after various chemical reactions.

In pharmacology or science of drugs we study about all such medicines. In this lesson, we understand and learn about the medicines which are used in various diseases, side effects of those medicines on different parts of the body, different kind of medicines used in different conditions for example to reduce temperature, drugs to reduce pain, drugs for nourishment, drugs to decrease blood pressure etc.

Now you would have understood that pharmacology (knowledge of science of drugs) is a science in which deal with the study of drugs used in various diseases and their reactions on different parts of the body.

Let us now understand how many ways you can give medicines to the patients and how many forms you can use them. Different dosage form of medicines.

1.	Tablet	–	Paracetamol etc.
2.	Capsule	–	Ampicillin, Amoxycyllin etc.
3.	Syrup	–	Cough syrup, tonic etc.
4.	Inhalation	–	Medicines used in asthma, congestion
5.	Injection	–	Most of the antibiotics, vitamins etc.
6.	Ointment	–	Soframycin ointment
7.	Drops	–	Eye drops, nasal drops, ear drops
8.	Bandage	–	Glycerine strip

9. Suppository – Dulcolax, glycerine suppository
10. Powder – To control fungal infection – use of anti-fungal powder
11. Sustained released implant – Insulin or pain reliefs or hormonal implant

Dose and Time for Medicine is given below:

1. OD – Once a day
2. BD (bid) – Two times a day
3. TD (tid) – Three times a day
4. QD (qid) – Four times a day
5. hs – Only at night
6. SOS – Whenever need.

Important Points

(a) The dose of medicine given to the patient depends on their body weight.

(b) Medicine dose given to the children should be less than the dose given to the adults.

(c) Most of the medicines are only meant for adults and should not be given to the children.

(d) Formula of calculating dose of children =

$$\frac{\text{Adult dose} \times \text{Weight of the child (kg)}}{70}$$

But the formula is not always accurate. Dosage is mentioned on the label of each medicine given to children and medicine is prepared as per the requirement of dosage for them.

The dose of the medicine depends on the following points:

- Age
- Body weight
- Intensity of disease etc.

Table showing Weight and Height as per the Age:

	Age in years	Weight		Height	
		kg	IV	cm	inch
Infant	0.0-0.5	6	13	60	24
	0.5-1	9	20	71	28
Children	1-3	13	29	90	35
	4-6	20	44	112	44
	7-10	28	62	132	52
Male	11-14	45	99	157	62
	15-18	66	145	176	69
	19-22	70	154	177	70
	23-50	70	154	178	70
	51+	70	154	178	70
Female	11-14	46	101	157	62
	15-18	55	120	163	64
	19-22	55	120	163	64
	23-50	55	120	163	64
	51+	55	120	163	64

Now you should know about certain drugs which are normally used by the Health Worker

1. Analgesics – medicines which give relief from pain. e.g. Paracetamol, Aspirin etc.
2. Antipyretic – medicine which give relief from fever. e.g. Paracetamol, Nimuselide etc.
3. Antiamebic – medicine used for diarrhoea due to amoeba. e.g. Metronidazole, Tinidazole, Secnidazole etc.
4. Antihelminthitic – medicine used to kill the worms. e.g. Albendazole, Pyrental Pamoate, Mebendazole etc.
5. Antibiotics – medicine used against bacteria. e.g. Rifampicin, Penicillin, Amoxycyllin, Ciprofloxacin, Amikacin etc.

6. Expectorant – medicines used as cough suppressants and respiratory tract dilation. e.g. Bromhexine, Terbutaline, Chlorpheniramine etc.

7. Antimalarial – medicines which helps in curing malaria. e.g. Chloroquine, Primaquine, Arteether etc

8. Anti-allergic – medicines which clears the allergy and protects from allergy. e.g. avil, cetirizine, fexofenadine

9. Nutritional-supplement – This category includes vitamins, minerals, protein powder, O.R.S, glucosamine, anti-oxidants etc. which provides essential nutrients to our body.

10. Antiseptic – medicines used to protect our body from infections. e.g. Lysol, Savlon, Spirit, Betadine etc.

11. Disinfectant – e.g. Lysol, Cresol, Phenyl, Glutaraldehyde, Formaldehyde etc.

12. Bronchodilator – medicines helpful in dilating the respiratory tract. e.g. Salbutamol, Terbutaline, Ambroxol etc.

The entire list of medicines is very exhaustive. Only some of them have been discussed above.

INTEXT QUESTIONS 6.1

Match the following:

(a)		**(b)**
1. Antiseptic	(i)	Phenyl
2. Antimalarial	(ii)	Amoxicillin
3. Disinfectant	(iii)	Paracetamol
4. Antibiotic	(iv)	Dettol
5. Analgesic	(v)	Chloroquine

Notes

6.2 ANTISEPTIC AND DISINFECTANT

Antiseptic are those medicines which inhibits the growth of micro-organism. We can use such medicine on skin. For example: savlon, dettol, betadine, spirit etc.

Disinfectant are the chemicals used for cleaning of the infected objects and environment to destroy the micro-organisms. Do not use this on skin as its use is harmful on the skin. For example: Cresol is used to disinfect sputum of tuberculosis patient and stool of cholera patients.

Sterilization

Bacteria and micro-organisms are killed with the process of sterilization.

Spores

Under unfavourable conditions bacteria tends to develop a wall surrounding it and stay inside safely, when favourable conditions develop it gets activated. The sun rays are also helpful in killing micro-organisms. It is a useful natural disinfectant but it cannot destroy the spores.

Sterilization by Boiling and Steam

By boiling the water for 20 minutes the bacteria present in water and other substances get destroyed. But the spores will not get destroyed. To sterilize the equipments place them on the separator in the pressure cooker. Separator is use to avoid direct heat contact of equipments. Most of the instruments used in the hospital like syringe, knife, needles etc are sterilized through this process.

The steam developed through high pressure leads to heat by which both bacteria and spores gets destroyed. 45 minutes sterilization with 15 pound pressure will kill most of the bacteria. The space within pressure cooker is less, so based on this principle a specific instrument named autoclave is used for sterilization. As the autoclave is bigger in size we can sterilize towels, gowns, bandage, gloves, cotton etc.

INTEXT QUESTIONS 6.2

Fill in the blanks:

1. ..... medicine is not used on skin.

2. Sterilization is a process in which ..... and its ..... can be destroyed.

3. ..... medicine is used to disinfect stool of cholera patient

4. With the pressure of 15 pound for ..... minutes sterilization most of the bacteria gets destroyed.

5. Most of the instruments in the hospital are sterilized in .....

6.3 DRUG REACTIONS

Medicines are essential for protection of life but if proper medicine and proper dose is not used they prove fatal. Apart from this, many medicines shows dangerous drug reaction inside the body, which if not treated on time may have adverse effects. So before using these medicines one should have the complete knowledge about proper dose, indication, contra-indication, its side effects and its mode of action in the body.

The person who has complete knowledge of correct dose and to control side effects are eligible to use or practice the medicines.

Simple drugs like paracetamol etc. can also show drug reactions in some people. Medicine should be administer under supervision of specialist who is aware of composition, correct dose, side effects, management of the side effects of drugs.

Now, let us learn about the various drug reactions:

1. Immediate reaction

2. Delayed reaction

1. Immediate drug reactions are also called as anaphylactic reactions. The symptoms are restlessness, breathlessness, cold skin, shivering, low blood pressure, feeble pulse. If a person is not receive proper treatment immediately in the hospital, it may affect his/her life and may lead to death.

   After first aid the person is taken to the hospital immediately. Any drug can produce anaphylactic reaction in particular person but mostly during blood transfusion, with penicillin group drugs the chances are more. So to reduce the risk prior to use these medicines, sensitivity test is necessary.

2. Delayed reaction is divided into three parts:

   (i) **Local reactions:** In this condition rashes on skin, itching, burning on nose will be seen

   (ii) **Systemic reactions:** This reaction may be life threatening in which various systems gets involved like nervous system, respiratory system, circulatory system etc. one or more systems may get involved.

   (iii) **Systemic bodily reaction:** In this different medicines will affect different systems in different ways. For example:

      (a) **Enteroquinol:** Atrophy in retina.

      (b) **Chloroquine:** It can destroy the blood and can produce haemolytic anaemia. Effects of Primaquine are also same and are more dangerous than chloroquine.

      (c) **Paracetamol:** Normally it is a safe drug but sometimes creates restlessness and produces rashes on the skin.

      (d) **Nimuselide:** This medicine is not indicated in children below 6 years of age. It should be used only in extreme condition. It has bad affects on liver and kidneys.

      (e) **Diclofenac tablet:** It produces urticaria, itching and restlessness and increases acid secretion in the stomach and irritates mucosa.

Apart from these sulpha group medicines, penicillin group antibiotics, salbutamol, theophylline etc. can produce drug reactions. One should be cautious before and after giving these medicines. Do not prescribe the medicine without doctor's advise as it can cause drug reactions in the body. In emergency immediately take patient to the hospital.

Role of Health Worker during Drug Reaction

1. For adults tablet Avil 25 mg and for children Avil 10mg is given immediately. In young children the dose is decided as per the body weight.
2. Call the doctor and tell about the condition and follow the instruction of the doctor.
3. Immediately take the patient to the nearby hospital.

Health worker should not do the following:

1. The medicines which shall produce intense drug reaction should be given as per the advice of the doctor. Such medicine should not be given without consulting with the doctor.
2. Don't give injection dexona without consulting the doctor.
3. Assess the condition of the patient and do not try to treat patient on your own.

INTEXT QUESTIONS 6.3

Tick Right or Wrong:

1. Nimuselide should not be given to the children below 6 yrs of age. ( )
2. Paracetamol is the safe drug. ( )
3. Chloroquine can increase retinal damage. ( )
4. During drug reaction for adults tablet Avil 25 mg is given immediately. ( )
5. Injection Dexona can be given without consulting doctor. ( )

6.4 THE FOLLOWING DRUGS AND MATERIALS MUST BE PRESENT AT HEALTH WORKER

1. Tablet Paracetamol
2. ORS – life saving solution
3. Syrup/tablet – Cotrimoxazole
4. Iron and folic acid tablets
5. Tablet Chloroquine
6. Tablet Sulphacetamide
7. Tablet Avil
8. Gauge
9. Bandage
10. Cotton
11. Soap
12. Gentian violet paint
13. Disposable delivery kit
14. Thermometer

15. Knife/scissors

16. Blood pressure instrument (Sphygynomanometer)

By consulting the doctor you can increase the number of article in the above visit.

WHAT YOU HAVE LEARNT

In this lesson, you have learnt about the medicines, doses and drug reactions on the body. Now you have understood that all medicines can produce allergic reactions. Reactions may be local, systemic. Reaction can be severe and the patient should be taken to the hospital immediately.

TERMINAL QUESTIONS

1. Prepare the list of medicines which are used in general with the help of health worker?
2. What is drug reaction? Name the drugs which produce reactions?
3. Meaning of the following-

   (a) Analgesic (b) Antipyretic (c) Expectorant

ANSWERS TO INTEXT QUESTIONS

6.1

1. (iv) 2. (v) 3. (i) 4. (ii) 5. (iii)

6.2

(i) disinfectant (ii) bacteria, spores (iii) Cresol

(iv) 45 (v) Autoclave

6.3

1. true 2. true 3. false 4. true 5. false

7

EMERGENCY AND ITS MANAGEMENT

There are times when a healthy person's life suddenly becomes endangered or may suffer from permanent disability due to incidents like road accident, falling from tree or terrace, injuries in the quarrel, snake bite, dog bite or the reaction of medicines etc., if proper treatment is not given immediately. In such cases, if the person is provided with the right medical treatment at the right time, his/her life can be saved and disability can be reduced. By this, even further treatment becomes simpler and less expensive. This is called emergency management.

The first 15 – 30 minutes are very important in emergency conditions. If any skilled worker uses his knowledge and skill properly then not only can he save the person's life but also he can save the affected person's organs from being injured.

OBJECTIVES

After reading this lesson, you will be able to:

- provide information about emergency conditions to the people;
- save the life of affected person;
- save the organs of the affected person from being injured;
- use medical practices and life saving measures properly;
- handle medical and surgical condition skilfully.

Notes

7.1 EMERGENCIES CONDITIONS

1. Drowning

If a person is drowned in water accidentally as he does not know how to swim or for any other reason and the water reaches lungs through his wind pipe and leads to loss of oxygen in body is called hypoxia (loss of oxygen). His survival depends on how less time he spends in hypoxic condition. Hypoxia for even few minutes can be life threatening.

Therefore, try to remove the water collected in the lungs as quickly as possible and then start giving artificial respiration. The sooner the process starts, the more likely the patient will survive.

The Role of the Health Worker

As soon as the person is taken out of the water, try to remove the water from his mouth, nose and wind pipe with the help of cotton or suction machine. Immediately after this, start giving mouth to mouth respiration/artificial respiration. It is expected to quickly exhale and breathe through the mouth. When the drowned person starts breathing, then steps are taken to remove water from the rest of his body. Handkerchief is kept on his mouth so that bacteria and other microorganisms will not enter in the body.

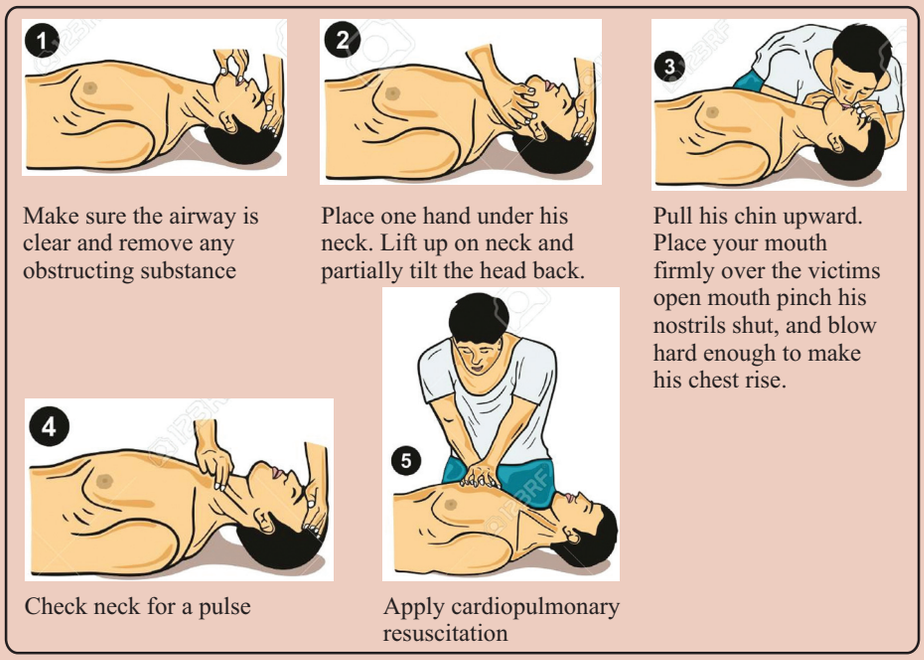


Fig. 7.1: Artificial respiration

Raise the mouth and chin of the victim for giving artificial respiration as shown in the picture. By this position his wind pipe is opened, and it becomes easy to provide breathe. Otherwise the air blown from mouth would get entered into stomach. After that, press the stomach while keeping the head in the same position so that the water collected in the stomach can get out from the mouth.

Further to provide oxygen and other treatments, take the patient quickly to the hospital where all facilities are available. In order to avoid any breathing problem in between, use the ambu bag for breathing. Breathing becomes easier with the help of ambu bag.

Fig. 7.2: Artificial respiration with the help of ambu bag

What a Health Worker should not do

1. Do not give treatment while putting head forward.
2. Even though the victim starts breathing by himself, take him to the hospital; do not try giving self-treatment.
3. Do not start providing breathing without cleaning mouth and wind pipe.

2. Heat Stroke/Sun Stroke

The climate in most part of India is hot.The temperature in some of the areas reaches up to 41 to 47°C which is unbearable, especially for small children, elder and weak people and for the persons addicted to liquor. The persons who are weak due to chronic illness are also unable to bear too much heat.

Symptoms

1. The body becomes red and feel warm on touching.
2. Victim becomes restless.
3. He experiences difficulty in breathing.
4. His blood pressure goes down and he may even become unconscious.

Role of the Health Worker in the Treatment

Keep the patient under a cool and shady area. Remove all his clothes. Pour cool water on his body and breeze the fan till the temperature of his body comes down. Also give him cold water to drink by mouth. If available, give ORS mixture immediately. Shift the patient to hospital immediately when he becomes stable, so that the doctor can provide the complete treatment by analysing the symptoms.

What should a Health Worker not do:

1. Do not delay treatment; as delay in treatment can be harmful for the patient.
2. Do not give any medicine without the consultation of the doctor.

3. Burning

When the skin of the body burns due to some reason especially with dry or moist heat, steam, or due to electricity, and then we call it as burn.

- Burn with fire.
- Burn with steam.
- Burn with hot water, milk, dal etc.
- Burn with electricity.
- Burn with radioactive elements.
- Burn with hot tools.

We classify the type of burning according to how much part of the skin is burnt.

1. **First degree:** When only the upper epidermis of skin is burnt- skin turns red but doesn't have blisters.
2. **Second degree**: In this, both the epidermis and dermis gets injured. Skin has blisters.

3. **Third degree**: In this, epidermis and dermis along with the inner structure i.e., epidermis tissues, its supplier blood vessels and nerves, flesh also get burnt.

Role of Health Worker in Treatment

1. First of all make sure that how much percent of the body is burnt and what degree of that burnt is? By this the procedure of treatment becomes easier.
2. Pour the cold water on the burnt part till the patient feels the burn sensation.
3. Do not burst blisters. If it is already burst then apply silver sulpha digene ointment on the affected part. If it is not available at that time, then apply gentian- violet cream and do the dressing. By doing dressing, it can be saved from outer infection.
4. Give the patient adequate amount of water, glucose and ORS and send him to the hospital for further treatment.
5. Pour water continuously on the skin burnt with acid, saline; so that they flow out along with water, then dress the wound with the ointment.
6. If accidently there is irritation in the eyes due to acid or saline, in that case wash the eyes thoroughly with cold water till irritation persists. After that apply chloramphenicol, gentamicin or ciprofloxacin eye drop again and again so that secondary infection can be prevented.
7. Manage the patient to the facilitated hospital as soon as possible.

What a Health Worker should not do

1. Blisters are the saviour of life and skin, so do not burst them till they burst on their own.
2. The quantity of saline needed depends on how much percentage of skin is burnt? Therefore do not provide saline without the consultation of the doctor.
3. In the primary burnt, there is no role of antibiotic. Hence do not give antibiotic.

4. Snake Bite

Every year around 20,000 people dies due to snake bite. Many snake species are found in the forest and rural parts of India. Out of which only three species of

poisonous snakes are found in India which are cobra, krait and viper. In India around 200 different types of snakes are found.

Fig. 7.3: Snake bite

We can save many people with the help of correct treatment at the right time. Unfortunately, even today, there is a greater practice of free blowing tips than medical treatment in the villages.

The Role of Health Worker in the Treatment

1. Wash the area where snake has bitten, with soap and water immediately.
2. Tie a bandage 2-3 inches above the affected area so that the spread of poison can be less in the blood and the blood flow stops in that area.
3. Do not tie blood flow inhibitor for more than 45 minutes as it can create gangrene or other problems. To maintain the blood flow loose the knot in between and tie it again.
4. For anti-snake venom take the patient to the hospital.
5. Clean the bitten area also by iodine solution.
6. Ensure the patient that he will be all right. Give him tea, coffee, milk etc. to drink.

What a Health Worker should not do

1. Do not tie blood flow inhibitor for more than 45 minutes.
2. Do not encourage flicks.
3. Do not try to provide further treatment except the first aid. As soon as possible take him to the hospital.

5. Fever

The normal body temperature is 98.4° F or 37° C. Above the normal temperature it is called fever. Person is seen suffering from fever after getting infection from many bacteria, virus or parasites. If the temperature crosses above 103° F then immediate treatment is necessary. Otherwise there can be a problem of convulsions in children and many other problems in adults. As high the temperature goes the risk of diarrhoea and possibility of brain damage increases. Fever above 105° F might be a reason of the death of person. Therefore, immediate management is very essential.

The following are the normal reasons of high fever:

1. Malaria, infection of wind pipe, pneumonia.
2. Dengue, chikungunya, Japanese encephalitis, kala azar.
3. Heat stroke/Sun stroke.

Fever is measured by thermometer. It is kept below the tongue or arm-pit. Usually it is marked from 94° F to 110°F. Now a days digital thermometer are available by which measuring fever become easier.

Role of Health Worker in the Treatment

1. Wipe the body of the patient continuously with a wet cloth. Remove all the clothes of the patient and breeze the air to cool the body. Put cool strips on the forehead.
2. Give paracetamol syrup, pills or injections to control the fever.
3. Take the patient immediately to the hospital for the proper treatment.

What health worker should not do

1. Do not give antibiotic medicines without proper information. Any medicine should be given only after the advice of the doctor.
2. Do not give even injection of paracetamol without the advice of the doctor.

6. Convulsions

It is a medical condition where body muscles contract and relax rapidly and repeatedly, resulting in uncontrolled actions of the body. Person in unconscious or semi-conscious state shakes his hands or legs in a jerky way. It is called

Notes

convulsions. There are so many diseases where convulsions occur as a symptom. Sometimes foamy saliva can be seen coming out of the mouth, and teeth bite down the tongue which leads to the injury and bleeding from the mouth.

Diseases in which Convulsions Occurs

1. High fever in children. Sometimes infection of round worm can also cause convulsions in children.
2. Convulsions also occur in cerebral malaria, encephalitis, meningitis, brain tuberculosis, brain tumor, epilepsy etc.
3. There are many psychological reasons as well which causes convulsions.
4. Convulsions also occur due to high blood pressure in pregnancy.
5. Even in head injury, convulsion may be present as a symptom.

Role of Health Worker in the Treatment

1. It is necessary to keep the wind pipe clean during convulsion, otherwise vomit material and foam saliva enters in to wind pipe and breathing gets obstructed. It can become harmful if not taken seriously.
2. Excess blood can flow due to cuts in the tongue area and it can cause obstruction in the wind pipe. It can also cause loss of blood, hence attention is required.
3. Send the patient to the hospital immediately if there is any other disease existing along with the convulsion.
4. After first aid send the patient immediately to the hospital for other treatment.

7. Abdominal Pain

Abdominal pain does not happen with one single reason as it has so many reasons starting from the indigestion to pancreatic problem. So every abdominal pain should be taken seriously. If the pain killers do not provide relief in abdominal pain then immediately go to the doctor for correct diagnosis. Sometimes delay in diagnosis and treatment can be life threatening.

Let's understand some common reasons of abdominal pain:

Reasons of Abdominal Pain

1. Gastric disturbances: gastritis, peptic ulcer, acidity.

2. Intestinal disturbances: worm infections, appendicitis, hernia, amoebic infection etc.
3. Liver and gall bladder: wounds in the gall bladder, hepatitis, stone in gall bladder or pancreas, tumor etc.
4. Stone or infection etc. in the kidney or urinary tract.
5. Cyst in ovary, uterus, fallopian tubes, infection or tumor in the uterus.

Apart from these there are many other reasons that cause abdominal pain. Its correct diagnosis and right treatment is necessary otherwise it can become dangerous.

Sometimes due to injury in stomach or due to intestinal perforation, terrible stomach pain occurs, which requires immediate operation. Otherwise the condition might get worse.

Symptoms

1. Severe pain in the stomach.
2. Vomiting
3. Complete absence of the bowel sound.
4. Stomach becomes tight due to fullness.
5. No movement is found in the intestine.

Role of Health Worker in the Treatment

1. Do not allow to give anything through the mouth to the patient.
2. Take the patient to a skilled doctor or hospital as soon as possible, where through investigations like ultrasound, X-ray correct diagnosis can be done and treatment is provided accordingly.
3. Make sure that after returning from the hospital, whether person is following proper instructions about food and medicine or not.

8. Head Injury

Patient with head injury arrives due to accidents. This accident can be a road accident, sudden fall or quarrel. Whether the injury is in the brain or external, this can be defined with some symptoms and related examinations:

Fig. 7.4: Head injury

1. Severe pain in head and giddiness.
2. Feeling of vomiting or nausea.
3. Secretion of blood or liquid from nose or ear.
4. Unconsciousness for a short period of time.
5. Complete unconsciousness.
6. Problem in concentration, taking decision, learning and walking.
7. Convulsion.

Role of Health Worker

Whatever be the symptoms, injury in head is a serious condition. Care must be taken while lifting and taking the patient to the hospital. Manage to send the patient to the hospital with minimum jerk by putting the collar in the neck.

What should a Health Worker not do?

1. Do not lift the patient of head injury without putting a collar in the neck. Avoid jerk in brain or neck region in the hurry of taking the patient to the hospital, as the condition of the patient might worsen.
2. Take care of the patient at home.

INTEXT QUESTIONS 7.1

Fill in the blanks.

1. The drowned person immediately needs ..... breathing.
2. High fever can be controlled by pouring ..... on the body.
3. Nothing should be given by ..... in a case of head injury.
4. Do leave blood flow inhibitor tied more than ..... minutes in snake bite.
5. In pregnancy ..... can be occurred in high blood pressure.

9. Fracture

A fracture is a broken bone. It can range from a thin crack to a completely broken bone. When a bone of the body is broken into two or more pieces, its structural form changes and this is called a fracture. Subsequently, its normal structure changes. If leg bone is fractured, then the leg movements gets difficult.

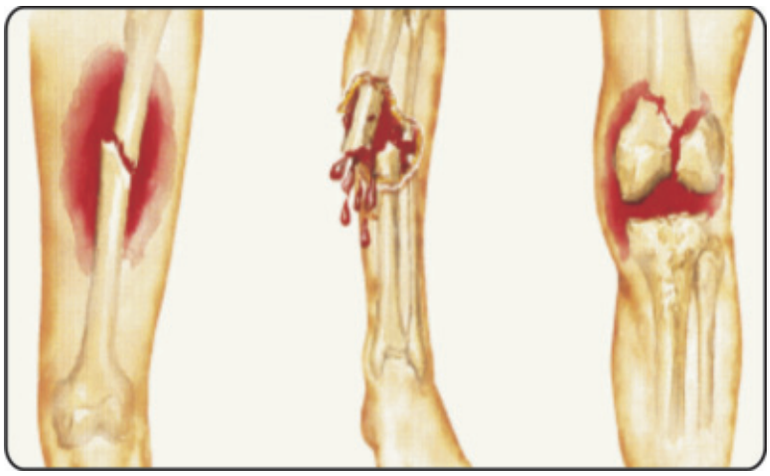


Fig. 7.5: Compound fracture

Types of Fracture

1. **General fracture or simple fracture:** In this type of fracture the bone breaks into two or more pieces without injuring the surrounding structures and outer skin.
2. **Compound fracture:** In this type of fracture, along with the bone, surrounding muscles and skin also gets injured. The bone breaks into two

Notes

or more pieces and comes in contact with the outer environment. This type of fracture is dangerous as the risk of infection increases due to invasion of bacteria present outside.

3. **Complicated fracture:** If the structures surrounding the fracture i.e., cells, veins, arteries, nerves gets injured, then it is called complicated fracture.

4. **Comminuted fracture:** When a bone breaks into more than two parts, then it is called comminuted fracture.Fractures of this degree occur after high-impact trauma such as in vehicular accidents.

5. **Depressed fracture:** It is a type of fracture usually resulting from blunt force trauma, such as getting struck with a hammer, rock or getting kicked on the head. The head bone is broken and pushed to the lower side. This is called depressed fracture.

6. **Greenstick fracture:** Children's bones are soft in nature. Most greenstick fractures occur in children younger than 10 years of age. A greenstick fracture occurs when a bone bends and cracks, instead of breaking completely into separate pieces. This is called greenstick fracture.

Symptoms of the Broken Bone

1. The inner and outer structure of bone breaks and the shape gets changed from being normal.

2. Surrounding area of broken bone becomes swollen.

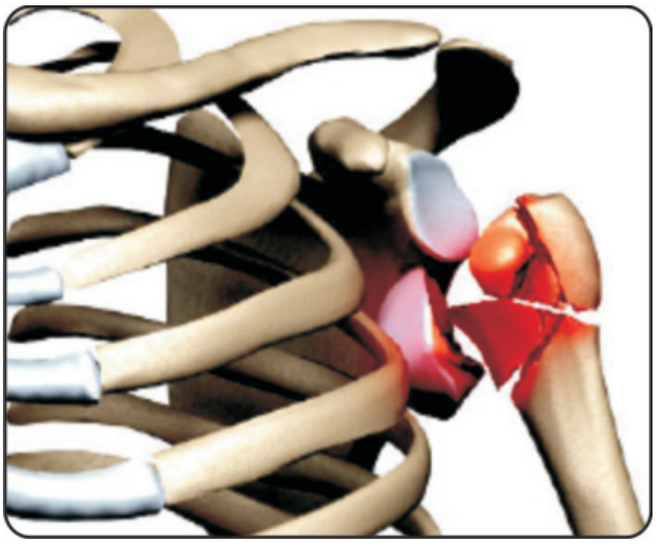


Fig. 7.6

3. If the skin gets torned, then it is said to be the compound fracture.
4. The broken part can be seen clearly by the X-ray of the affected area.
5. If there is profuse bleeding around the broken area then it means that veins or arteries also gets injured, and if the motor and sensory functions are also stops functioning properly it means nervous system is also affected.

Role of Health Worker in the Treatment

1. In general fracture: During first aid, keep the organ straight with the help of splint and tie it. So that its movement can be controlled. By this the further damage to the bone and pain gets prevented. Even other surrounding tissues can also be saved from injury. Splint is made up of a piece of wood, stick or with any other thing which support bone.

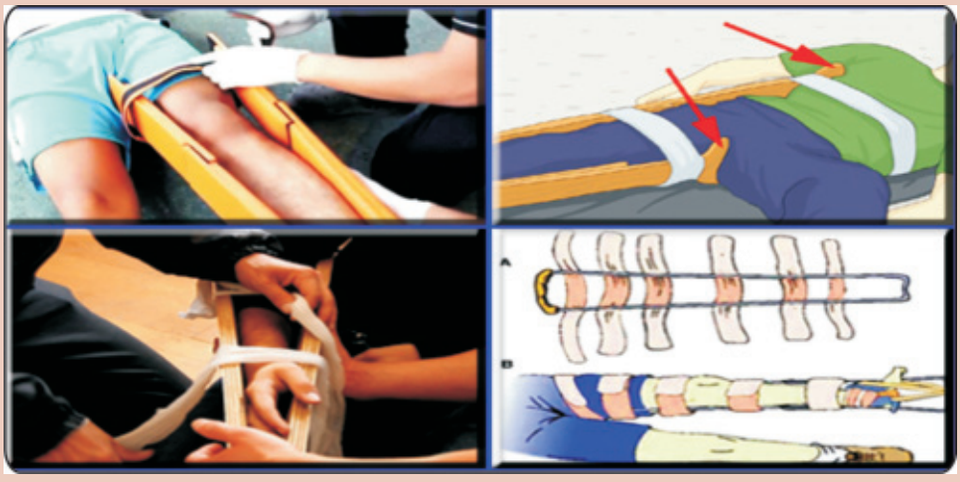


Fig. 7.7: Use of splint in the fracture

2. In compound fracture: At first, proper dressing should be done in the injured area with an antiseptic. After that, immobilize the bone by splint and shift to the hospital as soon as possible.
3. In complicated fracture: If there is profuse bleeding then try to stop the bleeding by tying pressure bandages. Then immobilize it with the help of splint and shift the patient to the hospital as soon as possible.
4. In all other types of fractures, as an immediate relief measure, shift the patient to the hospital soon,where specific treatment can be given after doing examination and required investigations like X-ray, etc. It is better to shift the patient to the hospital in order to avoid further complications.

Dislocation

Normally this is a condition which occurs in the joints. Due to injury, the bones of the joint get displaced from its original place. Hence, functions of joints are minimised or restricted and it causes severe pain.

Immediately a vehicle should be arranged to send the patient to hospital by placing a splint.

INTEXT QUESTIONS 7.2

Make pairs of the following:

A		B	
1.	Compound fracture	(i)	breaking of the bone into two or more parts
2.	Greenstick fracture	(ii)	Injury of cell, arteries, veins or nervous system along with the bone
3.	General fracture	(iii)	Head bone is broken and pushed to the lower side
4.	Complex fracture	(iv)	injury of skin and muscles along with the bone
5.	Depressed fracture	(v)	crumbling of the bone
6.	Comminuted fracture	(vi)	Broken bone bent like a soft bamboo.

10. Poisoning

A poison is any substance that is harmful to human body. Poisoning is a condition in which a person becomes chemically harmed adversely by a toxic substance leading to obstruction or impairment in the physical function of a person. Obstruction in essential functions of the body can even lead to death. There are different kinds of poisons which affect the body in different way. Here is a list of various forms of poisons used inadvertently in day to day life.

1. Folidol – tick 20
2. Kerosene
3. Phenyl
4. Harpic

5. Fruit of caner
6. Sulphuric acid/ hydrochloric acid
7. Inhaling of carbon monoxide
8. Mosquito/ mouse repellent
9. All the insecticide and pesticides
10. Sulphas
11. Excess dose of sleeping pills
12. Potassium cyanide

Symptoms and Identification

Different types of poisons affect our body differently. Broad description of all poisons is not possible here. But we can identify the type of poison by these facts easily-

1. If the patient is in the conscious state, he himself can tell what kind of poison he took.
2. Most of the patients use the poison of organophosphorus group, which is generally used in insecticides or pesticides. By the intake of this type of poison pin point pupils of eye, foamy saliva comes from the mouth and the lung secretion occurs.
3. If a person consumes sulphas, acid or alkaline poison, he experiences burning sensation, in the stomach region.
4. We can also identify the type of poison from the smell of vomit.
5. The poison can also be identified by examining the substance coming from the vomit.

Role of Health Worker in the Treatment

1. Irrespective of the type of poison consumed first try to expel it from the body. For this purpose, assist the patient to vomit and then, clean the stomach thoroughly with the help of salt water by putting a pipe into the stomach. If the patient is unconscious then take him to the hospital immediately for further treatment. The specific method of stomach wash is possible only in hospital and is essential in all the organophosphorus poisons.

Notes

2. Person who consumes kerosene oil faces risk of bronco pneumonia. In this condition, oxygen and antibiotics are used to manage.
3. Person, who has consumed alkaline substances, must be given water mixed with vinegar. If any acidic substance is consumed then, sodium bicarbonate is given with water to make it inactive.
4. Person who consumed phenyl or Dettol,maximum amount of water must be given, so that injury of food pipe and stomach can be reduced. Generally, children get affected by these substances.
5. Send the patient to the hospital soon after giving first aid so that further medication can be provided.

What should a Health Worker not do

1. Do not give treatment by your own, even if you see temporary relief in the condition. Send the patient immediately to the hospital.
2. Inform the police about the condition and treatment of the patient. Do not try to hide anything.
3. Inform the doctor thoroughly about the first aid/treatment given. Do not try to hide anything.

11. Care of a Paralysed Patient

To maintain the personal hygiene of the paralysed patient, intensive care is required. Various kinds of complications can arise if proper hygiene is not maintained.

You must know:

1. The alternative ways through which patients should be taken care if systematic care is not possible.
2. Complications are reduced by maintaining proper personal hygiene. This increases the possibility of better quality of life and health improves rapidly.

Paralysis can occur by various reasons. Some of the common reasons are-

1. Haemorrhage
2. Brain cancer
3. Head injury due to accidents or homicidal incidents
4. Rupture of arteries in the brain
5. Blood clot occur in any part of body and reaching the brain

In paralysed state, the patient is unable to do his own task. Therefore, he needs help in his day to day activities. As most of the time these patients keep lying on the bed, they need special care to maintain their personal hygiene.

1. Keep the mouth and teeth clean and maintain oral hygiene. Application of boroglycerine regularly on daily basis will prevent the growth of infections. If there is a fungal infection apply anti-fungal liquid such as miconazole mixed with boroglycerine.

2. Care of the skin is very essential, especiallythe back side of the skin. Most of the time paralysed patient is in lying position due to which there is constant pressure in the back region, which leads to bedsores. As a result the treatment becomes difficult and the condition of the patient worsens.

To get rid of this problem, change the position in every 1 to 2 hours. So that the blood circulation does not gets obstructed. Water bags are also available nowadays that helps reduce stress and bedsores.

If there are bedsores then apply sophramycin or silver sulphide antiseptic and take antibiotic, it gives quick relief. Use of air ring on pressure points also helps in reducing bedsores.

INTEXT QUESTIONS 7.3

Write the following sentences as True or False.

1. Sodium bicarbonate is given to the person consuming acidic substances.

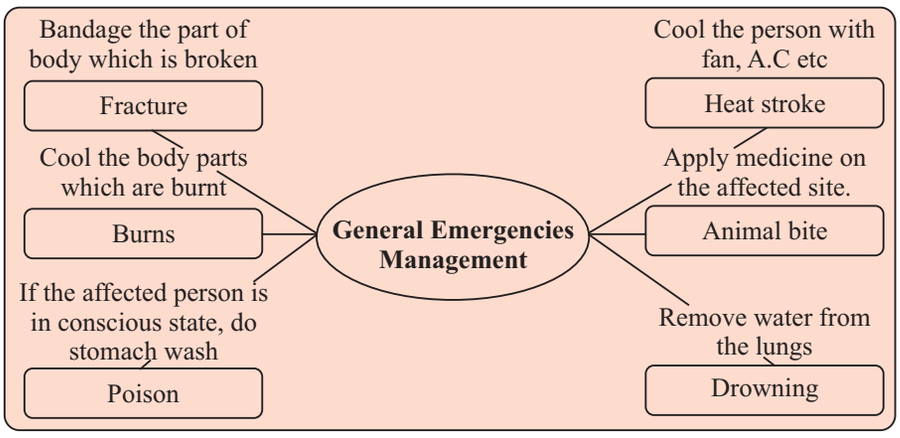
2. The patient who has consumed phenyl/Dettol should consume large amount of water.

3. One cannot identify the specific type of poison by the vomit substance.

4. Eye balls are dilated of the person who have consumed mouse repellent.

WHAT HAVE YOU LEARNT

In this lesson, you have studied about the general emergencies such as burns, drowning, snake bite, fracture, etc. You have also learnt about the reasons, symptoms and the management of these emergencies. In most occasions, these are life saviours; therefore, everyone must have a good knowledge about these emergency conditions.



TERMINAL QUESTIONS

1. Mention various types of poisons which occur in the human body. Mention their treatment.
2. Describe various types of fractures and their respective treatment.
3. Mention the treatment of high fever. Why is it necessary to bring down the temperature immediately?
4. Mention the treatment of drowning. What precautions should be taken during oral/mouth to mouth breathing?
5. Describe various kinds of burn and their respective treatments.

ANSWERS TO INTEXT QUESTIONS

7.1

1. artificial 2. cold water 3. mouth 4. 45 5. convulsions/fits

7.2

1. (iv) 2. (vi) 3. (i) 4. (ii) 5. (iii) 6. (v)

7.3

1. right 2. right 3. wrong 4. right 5. wrong