UNIT-IX

Introduction To Chemotherapy

Chemotherapy is a treatment of various diseases caused by pathogenic organism (bacteria, fungi, viruses, protozoa, and worm) with chemical substance, which due to their selective toxicity, destroy or remove the pathogenic organism without injuring the host. The chemical substances used for this purpose are called chemotherapeutics agents.

Drugs used for the treatment of neoplastic disease (anticancer drug) are also including in chemotherapy. Although cause of cancer is not known in most of the cases and anticancer drugs are most toxic to the patients as compare to anti microbial drugs. Anticancer chemotherapy does play important role in the treatment of cancer.

Drugs Used In Chemotherapy

1. **➔Antibacterial drugs**
2. **➔Antiviral drugs**
3. **➔Antiprotozoal drugs**
4. **➔Anthelmintics**
5. **➔Antifungal drugs**
6. **➔Antitubercular drugs**
7. **➔Antileprotic drugs**
8. **➔Anticancer drugs**

Antibacterial Drugs

Antibacterial drugs are used to treat infection caused by bacteria. These drugs posses selective toxicity against bacteria as compared to host cells. These drugs may be bacteriostatic or bacteriocidal in their activity.

Antiviral Drugs

Antiviral drugs are used to treat infections caused by viruses. Viruses do not contain cell wall and cell membranes and its replication depends on the metabolic processes of the host cell therefore they are not affected by antimicrobial agents.
Therefore clinically effective antiviral agents need to be given much earlier before the onset of the disease. Administration of drugs that block viral replication has limited effectiveness. However some antiviral agents are useful as prophylactic agents.

Antiprotozoal Drugs

Antiprotozoal Drugs used to treat protozoals infections. Protozoal infections are common among people in underdeveloped countries, where sanitary conditions, hygienic practices etc are inadequate with increased world travel protozoal diseases such as malaria, amebiasis, and trypanosomiases are spreading.

Many of the antiprotozoal drugs cause serious toxic effects in the host. Most Antiprotozoal agents have not proved to be safe for pregnant patients.

Anthelmintics Drugs

Anthelmintics are drugs used for eradication of worms from the body. An anthelmintic, which kills the worm, is called vermicide. If the drug is merely noxious to the worms and causes them to be expelled from the body, it is called a vermifuge.

Antifungal Drugs

Antifungal drugs are used treat fungal infections. Fungal infections are common. They may affect mucous membranes, skin hair and nails. Sometimes internal organs may be involved e.g lungs, intestine, liver, brain etc. Some antifungal drugs are for local application only. Other drugs are given orally or may be injected.

Antitubercular Drugs

Antitubercular drugs are used to treat tuberculosis. Tubercular is small rounded swellings or nodules. Tubercular is an infectious disease caused by the bacillus and characterized by formation of nodules. In pulmonary tuberculosis, the bacillus is inhaled into the lungs where it sets up a primary tubercle and spreads to the nearest lymph nodes.

Antileprotic Drugs

These drugs are used to treat leprosy. Leprosy is a chronic disease caused by bacteria that affect the skin mucous membranes and nerves causing discoloration and lumps on the skin.

Anticancer Drugs

These drugs are used to treat cancer, neoplasia or tumor. Cancer is a disease caused by an uncontrolled division of abnormal cells in the part of the body that then invade and destroy the surrounding tissues.

Spread of cancer cells (metastasis) may occur via the blood stream or the lymphatic channels. Cancer may be treated by surgery, radiotherapy or chemotherapy. Certain tumors are highly sensitive to chemotherapy but many tumors are not sensitive to such drugs.

UNIT-X

Introduction To Drugs Used In Anesthetics

Anesthesia is insensitivity to pain, especially as artificially induce by the administration of gases or drugs before a surgical operation.

General Anesthesia
General anesthesia is a total unconsciousness of the body achieved by the drugs that affects the whole body. It is used for major surgical operations.

Local Anesthesia
Anesthesia that affects a limited area of the body and is used for minor surgical operations e.g. dental procedures.

For patients undergoing surgical and other medical procedures, anesthesia provides these five important benefits…

1. **Sedation And Reduction Of Anxiety**
2. **Lack Of Awareness And Amnesia**
3. **Skeletal Muscle Relaxation**
4. **Suppression Of Undesirable Reflexes**
5. **Analgesia**

Stages Of Anesthesia

Anesthetic drug effects can be divided into four stages of increasing depth of central nervous system depression.

1. **Stage Of Analgesia**
2. **Stage Of Excitement**
3. **Stage Of Surgical Anesthesia**
4. **Stage Of Medullary Depression**

Drugs Used In Anesthetics

General Anesthetics
Inhaled (Halothane) and **Intravenous (**Benzodiazepines)

Local Anesthetics
➔Lidocaine

Halothane (General Anesthetics, Inhaled)

Mechanism Of Action

No specific receptor has been identified as the locus of general anesthetic action. General anesthetics increase the sensitivity of the GABA receptors at clinically effective concentrations of the drug. This causes a prolongation of the inhibitory chloride ion current after a pulse of GABA release. Postsynaptic neuronal excitability is, thus, diminished.

Halothane induces the anesthetic state rapidly, and quick recovery made it an anesthetic of choice.