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**Diploma in Pharmacy 2<sup>nd</sup> Year**  
**Hospital & Clinical Pharmacy**  
**Chapter 10 : Poisoning**

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## Chapter 10

# Poisoning

- **Poison:** Poison is a substance which when consumed , Inhaled , applied to skin , injected or created within body and produces a harm effect to the body . It may be heavy metals, Drugs , animal poisons and Bacterial Contaminated food or drink .
- A Poison change the cellular metabolism and chemical activity and damage the cell from functioning and then diseases and death occurs .
- **Poisoning :** injury or death of cell due to poison is called poisoning It may be acute or chronic .
- **Antidotes :** antidote is a substance which neutralise the poison and reduce its harm effects to the body .

## Types

- **Physiological Antidote :** It Counteracts the poison effects by Producing opposite Effects For example caffeine is used in morphine Poisoning .
- **Chemical antidotes :** It change the chemical nature of Poison For example Sodium Thiosulphate is used in Cyanide Poisoning .
- **Mechanical Antidote :** It prevents the absorption of poison in the body , For example Kaolin and Charcoal absorb the poison and prevent absorption into body , albumin of eggs , it makes a layer on intestine lining and prevent absorption .

## General Principles of Poisoning treatment

- 1) Removal of Unabsorbed Poison
- 2) Removal of Absorbed poison
- 3) Antidotes

### Removal of Unabsorbed Poison

- 1) **Emetics :** 15 g of Sodium Chloride ( salt ) dissolved in a glass of wa ter and given to patient to produce Vomiting . and this process should be repeated till vomiting .
  - If it fails 1-2 g of ipecacunha powder is given , if it does not work Apomorphine hydrochloride injection is given but it does not given in morphine Poisoning .
- 2) **Diarrhoea :** this method is used to remove the poison from GIT through stool Sodium Bicarbonate solution 5% w/v , other purgatives can be used .

### Removal of absorbed Poisoning

- Diuretics are used to remove absorbed poison.

### Removal of Gaseous Poison ( Carbon monoxide )

- Fresh air and O<sub>2</sub> is used to remove gaseous poison , Ventilator can be used.

# Types of Poisoning : Clinical Manifestation & Antidotes

## 1) Food Poisoning

→ This type of poisoning Occurs due to microorganism which are enter in the body with food or Beverages .

### Clinical Manifestation

- Cramping in stomach
- Vomiting
- Loss of appetite
- Fever
- Fatigue
- Headache

### Antidotes

▲ Antibiotics are used according to specific microorganism .

## 2) Insecticide Poisoning

→ Insecticides are substances used for destroying insects like :

- Organochlorine insecticides e.g. Chlordane , Heptachlore , DDT ( Dichlorodiphenyltrichloroethane )
- Organophosphorus
- Carbamate

### Clinical manifestation

- Abnormal sensation in tongue , lips , face
- Dizziness and tremor
- Convulsion

### Antidotes

- Atropine
- Parliadoxime

## 3) Snake Bites

→ Snakes have Poisonous gland on both side of Head , their saliva is venom ( poison ) which is a complex mixture of proteins and enzymes :

→ Which are following

- Neurotoxin-A ( it affects cardiac and respiratory center and central nervous system .
- Neurotoxin-B ( it causes paralysis )
- Enzymes ( Cholinestrase , Phosphatase etc.

## Clinical Manifestation

- Two puncture Wounds
- loss of sensation of face .
- Increased heart rate
- Blurred vision and headache
- Excessive sweating
- Vomiting
- Unconsciousness
- Diarrhoea
- Fever
- Convulsion

## Antidotes

- Antibiotics : Q6H IV ampicillin , Doxacillin and me tronidazole should be given
- Atropine 1.2 mg and neostigmine are given to remove Paralysis .
- Snake Venom Antiserum I.P.

## 4) Narcotic Drug Poisoning

→ The poisoning occurs due to overdoses of opioid Drugs is called Opium Poisoning.

## Clinical Manifestation

- Excitation : restlessness , Redness of face , heart rate Increased .
- Stupor : starts unconscious , headache , Fatigue , Contraction of eye pupils
- Coma : muscles becomes relaxed , reflexes stopped , respiration depressed and pulse becomes very slow

## Antidotes

- If it is confirm that the poisoning is due to opiates Nalorphine injection is given I.V . route.
- The patient's body be kept warm .
- CNS stimulant should be given like Nikethamide ( Coramine )

## Drugs and Poison Information Centre and their services

- Drug Information and Poison Control Center is a source of authentic accurate unbiased and reliable source of information about drugs and poisons to health case professionals and common masses.
- A Drugs and Poison Information Centre (DPIC) is a specialized facility that provides information about drugs and poisons to healthcare professionals, patients, and the general public. These centers serve as a valuable resource for education, prevention, and treatment of drug-related problems.

## Objectives

- To provide independent, unbiased, authentic, accurate and objective drug information to assist health professionals in rational prescribing to optimize patient care.
- To advise general public regarding safe, effective and economic use of medicines.

## Requirements

- ▲ Requirements for a Drugs and Poison Information Centre may vary depending on the country, but generally, it should have a team of experts, including pharmacists, toxicologists, and healthcare professionals with expertise in drug-related issues.
- ▲ The center should also have access to a comprehensive database of information on drugs and poisons, as well as the ability to perform research on drug-related issues.

## Information resources

- ◇ Databases: DPICs often maintain their own databases of information on drugs and poisons. These databases may include information on the pharmacology of drugs, their toxicology, interactions, side effects, and dosing guidelines.
- ◇ Online resources: DPICs may also offer online resources, such as websites, apps, or chatbots, where people can access information about drugs and poisons.
- ◇ Phone helplines: Many DPICs offer phone helplines that people can call to speak with a healthcare professional or pharmacist about drug-related issues

## Advantages

- ✓ **Increased patient safety** : DPICs can provide healthcare professionals with up-to-date information about drug-related issues, including drug interactions and adverse effects, which can help to prevent adverse drug reactions and improve patient safety.
- ✓ **Improved education** : DPICs can provide education and training to healthcare professionals and patients, helping to improve their understanding of drug-related issues.
- ✓ **Timely information** : DPICs can provide information quickly in the event of a drug or poison-related emergency.

## Disadvantages

- ▲ **Cost**: Setting up and maintaining a DPIC can be expensive.
- ▲ **Limited availability** : DPICs may not be available in all areas, which can limit access to information about drugs and poisons for some people.
- ▲ **Limited scope** : DPICs may not have the resources to cover all drugs and poisons, which can limit the scope of their services.

## Services

- Services offered by the DIPCC at Department of Pharmacy, University of Peshawar
- Choice of Therapy.
- Medicine Dose.
- Duration of Therapy.
- Drug Identification.
- Therapeutic Alternatives.
- Drug Interactions & Their Management.
- Drug Contraindicated in Pregnancy, During Lactation.
- Dose Adjustment in Hepatic and Renal Impairment.
- Drug Updates, Withdrawals, ADRs, Antibiotic Resistance, Novel Dosage Forms and Delivery Systems.
- Information on Reconstitution, Dilution, Stabilities and Rate Calculations of Parenterals.
- Mode of Drug Administration.
- Special Drug Related Precautions/Warnings.
- Poisoning Prevention Strategies.
- Poison Management Information (Identification, Diagnostic Tests, Absorption Minimizing Techniques, Elimination Enhancement Techniques, Antidotes Availability and Administration

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