

Emergency Management of Poisoning



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Emergency Management of Poisoning

- Cases of poisoning in India are common as poisons can be easily obtained and many poisonous Plants grow wild: Dhatura, Nux vomica, Aconite etc.
- A poison is a substances which if introduced in the body or brought into contact with any part thereof, will produce ill health or death.

INTRODUCTION



- The definition is unsatisfactory any drug in a large dose can act as a poison.

Types of Poisoning

1. **Accidental Poisoning:** Poison is taken accidentally eg. ingestion of Kerosine of drugs by small children, snake bite
2. **Suicidal poisoning:** Poison is consumed by the person himself by the intention to commit suicide, copper sulphate, barbiturate etc, are used for this purpose.
3. **Homicidal Poisoning:** Poison is given to the victim by some other person for the purpose of killing, arsenic, cynide, dhatura seeds ets. are used for this purpose.

Poisons can enter into the body by the following routes

1. **Oral:** Mostly poisons are taken by oral route. E.g. drugs, strong acids, strong alkalis, kerosene, contaminated food.
2. **Inhalation:** Gases like carbon dioxide, carbon monoxide, ether, spray of insecticides are enter into the body through Lung during respiration.
3. **Injection:** Persons belonging to medical profession and addicts take the toxic dose of a drug by injection narcotics, hypnotics and others poisonous substances are generally injected.
4. **Skin:** Insecticides (Organophosphorous compounds) commonly enter into the body through skin during their spry in the fields. In case of bites by dog, wild animals, snakes bikes, bees or wasps the poison enter into the body through skin.

General Management of Poisoning

The aims of first aid treatment are on separate lines:

1. To sustain life (by giving artificial respiration, cardiac resuscitation or control of bleeding and shock)
2. To prevent the condition from becoming worse (E.g. covering wounds, immobilising fractures, nullifying the poisons)
3. To promote recovery.

In an acute poisoning case the Pharmacist may contribute by

1. Contact a poison centre or a Pharmacy
2. Serve as a clinical Pharmacist in an emergency room or poison centre to provide therapeutic consultation.
3. Be involved in the identification of the ingested materials both via cross examination and chemical analysis of the agents and body fluids.
4. Prepare intravenous fluids the patient may require.
5. Serve as a member of the cardiac arrest team that may treat a patient.
6. In some case, be the individual who directly administers drugs.
7. Provide drug information as a staff member, or director, of a drug information centre.

The Practical application of the treatment in Toxicology (Poisoning) consists of the following:

1. Emergency & general supportive measures
2. Removing unabsorbed poison
3. Prevention of further drug absorption
4. Hastening of drug elimination from body
5. Measures specific to drugs
6. Psychiatric assessment.

Emergency & general supportive measures (Management of acute poisoning- Summary)

I	Respiratory Function	<ul style="list-style-type: none"> • Check gag reflex, Remove dentures, clear out Oropharyngeal obstructions: Debris, secretions • Lay on left side with head down, insert oral airway, an endotracheal tube. • Give Oxygen if hypoxic, Assist respiration if require.
II	Circulatory Function	<ul style="list-style-type: none"> • Check heart rate & blood pressure, If systolic B.P. below 80 mmHg (Young Patient) or 90 mmHg (Old Patient) • Raise end of Trolley bed, Give volume expanders • If Volume overload- give dopamine &/or Dobutamine.

III	Renal Function	Monitor urine output.
IV	Consciousness	Assess level of consciousness
V	Body Temperature	Take temp. rectally if below 36°C, reheat slowly, warm all inspired air/ IV fluid
VI	Convulsions	Treat with diazepam Clomethiazole, Phenytoin or Anaesthesia with Assisted ventilation
VII	Cardiac Arrhythmias	Treat as required
VIII	Gastric Lavage	Add nonspecific or specific antidote to lavage fluid.

IX	Fluid & electrolyte balance	Dehydration-Oral fluid enough Unconscious patients use- IV fluid & insert CVP line Treat hypokalaemia.
X	Specific emergency	Ex: Opiate poisoning with Naloxane & CO with O ₂
XI	Chest radiography	In drowsy or comatose patients who vomit after endotracheal intubation.
XII	Collection of specimens	Gastric aspirate: (drugs), Urine: (drugs, renal function), Blood: (drugs, arterial gases, electrolytes)

Artificial Respiration

- Open the air passage, if obstructed.
- Avoid very forceful methods – Preferably use inhalation apparatus 15-20 times/min

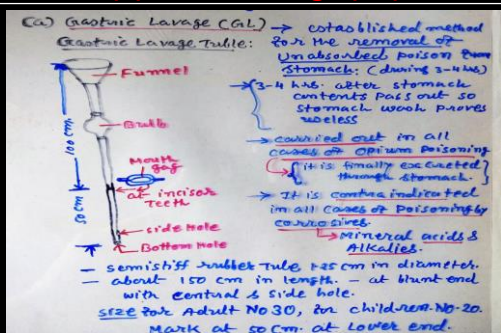
Various method of artificial respiration:

- Stretcher method
- Reflex stimulants
- Arm-lift-back press
- Mouth to mouth method
- Anal stretch
- Cardiac massage with artificial respiration.

Removing unabsorbed poison:

- (a) Gastric Lavage (GL)
- (b) Use of emetics
- (c) Use of Purgatives
- (d) Use of diuretics

(a) Gastric Lavage (GL)



Note: Before pouring in warm water or antidote dip the funnel end into glass of water to ascertain that no continuous bubbling.

SOLUTIONS & SUBSTANCES FOR GL:

- Saline 500 ml (1 teaspoonful of NaCl in 1 tumblerful warm water)
- KMnO_4 Solution for Sulfo Tab. (Conc. just give taint pink solution)
- For Alkaline wash 5% sodium bicarbonate solution
- Sodium thiosulphate & Dimercaprol solution → In the treatment of Toxic metallic poisoning

GENERAL ANTIDOTE (GA)

Consist a mixture of –

- | | | |
|--------------------|---|---|
| Magnesium Oxide | - | 1 Part (Neutralizer) |
| Tannic acid | - | 2 Part (ppts. alkaloids, glycosides & certain metals) |
| Activated charcoal | - | 2 Part (Absorbed various poisons like strychnine) |

- These are suspended in glassful warm H_2O & then given Orally.
- Universally useful & harmless
 - Kaoline can also be given – in toxic matter
 - Flour – adsorbent

EMETICS

- If the patient is not vomiting - give 15 g of NaCl in glassful warm water
- If Unsuccessful – Then 2 Teaspoonful of mustard powder
- If not give: - Ipecacuanha powder 1-2 g. OR finally Apomorphine hydrochloride 5 mg Inj. S.C.

[Inj is contra indicated in Morphine Poison]

- Mechanical irritation of throat by finger.
- Tongue – depressant, spoon etc.

(Note: Present first sample of vomit in a sealed bottle for medicoligol investigation)

Demulcents

Any blend mucilaginous, fatty, starch or adsorbent substances can be used-

- (i) Gelatine 10-20 g in 500 ml tepid water
- (ii) White of an egg mixed with water
- (i) Milk or Milk cream
- (ii) Edible oil and fats: Ghee, Olive oil, Butter, Sweet oil
- (i) Rice (over cooked)
- (ii) Flour (in water)
- (iii) Potato (boiled & smashed)

PREVENTION OF FURTHER DRUG ABSORPTION

- use of activated Charcoal (5-10g/100 ml H₂O)
 - ↓
 - Instilled into the stomach after GL
- Orally 25-50g → reduce absorption
 - Poisoning of = Salicylates, dextropropoxyphene, barbiturates, TCA, Digitalis
- Poisoning with → Ferrous salts, Lithium, Methanol, Ethylene glycol, Acids & Alkalis
 - ↓
 - should not be treated with Activated Charcoal

HASTENING OF DRUG ELIMINATION FROM BODY:

- Acidification
- Forced diuretics
- Dialysis → Drug not bound with protein, Removing of toxins

CHARCOAL HEMOPERFUSION:

- is of value when there is high plasma protein binding
- in serious poisoning with glutethimide, meprobamate, methaqualone, theophylline

USE OF SPECIFIC DRUGS OR ANTIDOTES FOR SPECIFIC DRUGS:

POISONING BY	AGENT(S) USED
Acetylcholinesterase	Atropine
Alkalis, Caustic	Acids
Ammonia	Acids
Amphetamines	Chlorpromazine, Pentolamine
Analgesics, Narcotic	Naloxone
Aniline derivatives	Ascorbic Acid, Methylene blue
Anticholinergic drug	Physostigmine
Antidepressants	Physostigmine
Arsenic	Dimercaprol (BAL)
Atropine	Physostigmine
Benzodiazepines	Flumazenil
Beta- Adrenoceptor antagonist	Glucagon, Salbutamol
Bismuth	BAL
Butyrophenons	Benztatropine
Carbamates	Atropine
Caustic Alkalis	Acids

USE OF SPECIFIC DRUGS OR ANTIDOTES FOR SPECIFIC DRUGS:

POISONING BY	AGENT(S) USED
Chlorates	Ascorbic Acid, MB
Clonidine	Phentolamine
Convulsive Agent	Diazepam, Clomethiazole
Cyanide	Dicobalt edetate, Sodium Nitrate + Sodium Thiosulphate
Digitalis	Antidigoxin Antibody
Ephedrine	Phentolamine
Ethylene glycol	Alcohol (Ethanol)
Glyceryl trinitrate	Ascorbic Acid, MB
Gold	BAL, Dimercaprol
Hyoscine	Physostigmine
Insecticide, Organophosphorus	Atropine
Iron	Deferoxamine
Lead	Calcium Gluconate, BAL
LSD	Chlorpromazine
Malathion	Atropine

USE OF SPECIFIC DRUGS OR ANTIDOTES FOR SPECIFIC DRUGS:

POISONING BY	AGENT(S) USED
Mercury	Dimer caprol
Methanol	Ethanol
Nitric Acid	Ascorbic acid, BAL
Narcotic Analgesics	Naloxone
Paracetamol	Acetylcysteine
Potassium/Sodium Hydroxide	Acids
Phenothiazines	Benztatropine
Reserpine	Benztatropine
Oxalic acid	Calcium Gluconate
Neostigmine	Atropine

COSMETICS

Substances	Active Chemical	Toxicity	Treatment
Lotion	Thioglycerol	Dermatitis & Skin rash	Apply- Calamine cream/Lotion, Antihistamine cream
Deodorants	Al-chloride Al-Salt	Irritation of gastric mucosa	Give milk to induce vomiting
Eye lash dye OR Hair dyes	Naphthymine phenyldiamins	irritation to eye	Discontinue use
Hair Lacquer	Vegetable gums, Synthetic gums	Sensitive dermatitis	Discontinue use
Hair straighteners	NaOH (up to 15 %)	Corrosive, severe pain, vomiting, diarrhoea	Dil alkali by Milk, GL, Fruit juice
Hair tonic	Alcohol arsenic, Lead silver etc	metal poisoning	Discontinue
Lip-sticks (Lip-dye)	eosin	Facial, dermatitis or stomatitis	Discontinue
Face powder	Orris	Sensitive dermatitis	Discontinue

Preventive Measures of Poisoning

Poisoning is a serious matter if care not taken Lead to death of victim

- Avoid accidental poisoning
- Avoid accidental by children

- Always keep drug under lock and key OR beyond the reach of the children.
- Do not store medicine for long period expired drugs must be discarded.
- Take proper precautions while storing, handling, insecticides, pesticides, disinfectants, petroleum products.
- Do not take drug in the dark.
- Always read label on the container while taking

Preventive Measures of Poisoning

- Do not burn coal in closed room as it produces highly poisonous gas.
- Do not put harmful liquid in the bottles of cold drinks – by mistake consume as thinking cold drinks.
- Use cooking gas carefully.
- Get your pets immunized against rabies
- Carefully destroy the empty containers of poisonous substance.
- Remove poisonous plants from the premises as well as surrounding - Home, School, Hospitals etc.

