

# **How to Manage Acute Intoxicated Patient ?**

**Presented**

**By**

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# Learning Objectives

1. Clinical assessment of acute intoxicated patient
2. Common clinical toxidromes and household poisoning.
3. Admission criteria of ICU for intoxicated patients.
4. Life-saving measures in cases of poisoning.
5. Common antidotes.
6. Methods of elimination.
7. Common mistakes in treatment of intoxicated patients.

# Clinical assessment of acute intoxicated patient

## A- History

- History taking depends on patient's condition
  - 1) Type of drug or poison ingested
  - 2) Dosage and amount
  - 3) Time of ingestion
  - 4) Accidental, suicidal or homicidal
  - 5) Signs and symptoms
  - 6) Past history such as drug allergy
  - 7) Family history
  - 8) Occupational history such as toxic exposure
  - 9) Social history

## **B-Physical Examination**

It should assess the following: -

- 1) Consciousness level**
- 2) Pupil size**
- 3) Rate and depth of respiration**
- 4) Heart rate and blood pressure**
- 5) Odour of breath**
- 6) Dryness of oral mucosa and skin**
- 7) Evidence of drug abuse (needle marks)**

# Toxidromes of Some Common Toxic Agents

Anticholinergic	Organo-Phosphate	Theophylline	Caustic substance ingestion	Sympathomimetics
Hotness	Lacrimation	Agitation	Dysphagia	Anxiety or delirium
Redness	Salivation	Seizure	Acute abdomen	Hyperpyrexia
Dryness	Sweating	Tremor	Chest pain	Hypertension
Mydriasis	Urination	Hypotension	Respiratory distress	Mydriasis
Tachycardia	Vomiting	Tachyarrhythmias		Tachycardia
Delirium	Abdominal colic	Diarrhoea		
Hallucinations	Diarrhea	Vomiting		
Constipation	Bradycardia	Hypokalaemia		
Urinary retention	Heart block	Acidosis		
	Wheeze			
	Fasciculation			
	Tremor			
	Coma			
	Convulsion			
	Ataxia			
	Slurred speech			
	Miosis			

# Admission criteria of intoxicated patient to ICU

If patient has one of the following criteria, it should be admitted to ICU:-

1. Respiratory depression ( $\text{PaCO}_2 > 45$  mm Hg)
2. Cardiac arrhythmia (2<sup>nd</sup> or 3<sup>rd</sup> degree of A-V block)
3. Systolic BP  $< 80$  mm Hg
4. Seizures, Glasgow coma scale score  $< 12$
5. Toxic pulmonary edema
6. Hypothermia or hyperthermia
7. Metabolic acidosis
8. Emergency dialysis, hemoperfusion
9. Drugs concretions
10. Administration of pralidoxime
11. Digoxin-Fab fragments
12. Antivenom of snake
13. Continuous infusion of naloxone

Unconscious patient

“Comatose”

Conscious patient



# Treatment of Poisoning Case

Treatment depends on condition of patient

# UNCONSCIOUS PATIENT (COMATOSE)

## 1-Life-Saving Measures :-

ABC : Airway-Breathing- Circulation

## 2- Decontamination

### A-General decontamination:-

Remove clothes + Wash the body + Irrigation of eye by water +  
Transfer patient to fresh air in toxic gas exposure.

### B- Gastric decontamination

1. Gastric lavage
2. Activated charcoal
3. Cathartic

## 3- Elimination

Forced diuresis - Haemodialysis

## 4- Antidote

# CONSCIOUS PATIENT

## 1-Decontamination

### A-General decontamination:-

Remove clothes + Wash the body + Irrigation of eye by water +  
Transfer patient to fresh air in toxic gas exposure.

### B- Gastric decontamination

1. Emesis (mechanical or medical “ ipecac”)
2. Gastric lavage
3. Activated charcoal
4. Cathartic
5. Whole bowel irrigation

## 2- Elimination

Forced diuresis - Haemodialysis

## 3- Antidote

# Life-Saving Measures

## A - Airway

- 1) Tilt the head and lift the chin or jaw thrust in cervical trauma.
- 2) Remove any foreign bodies.
- 3) Insert the oro or naso-pharyngeal airway with regular suction.
- 4) Turn the patient to the recovery position.
- 5) Endotracheal intubation with a cuffed tube before gastrointestinal decontamination for absence of the gag reflex in the comatose patient.

## B - Breathing

- 1) 100% oxygen
- 2) Bag-valve mask or positive pressure ventilation for slowing of breathing

## C - Circulation

- 1) Assess circulation (heart rate, blood pressure and hydration status)
- 2) Maintain circulation by:-
  - a) Dopamine and dobutamine
  - b) IV fluids
  - c) CVP monitoring
  - d) ECG monitoring
  - e) Maintain head of shocked patient in the down position
- 3) Administer empirical antidote (naloxone, flumazenil) in some cases of coma.
- 4) Investigate blood glucose level in some cases of coma.

# ANTIDOTE

**Antidotes:** drugs or agents are used to cure poisoning by counteracting the poison effects.

**Types :**

**1. Chemical antidotes:** combine with poison such as neutralization of an acid by alkali.

**2. Physical antidotes:** prevent poison absorption such as activated charcoal .

**3. Pharmacological antidotes:** produce the opposite pharmacological effect of poison such as atropine.

- Antidotes should not be administered unless positive identification of poison has been made.
- Antidote must be administered as soon as possible after the poison introducing into the body.

# Examples of Common Antidotes

<b>Toxin</b>	<b>Antidote</b>
Anticholinergic drugs	Physostigmine
Benzodiazepines	Flumazenil
Phenothiazine	Diphenhydramine
Iron	Desferrioxamine (Desferal)
Lead	Dimercaprol, EDTA, Penicillamine
Methaemoglobinaemia	Methylene blue
Opioids	Naloxone (NARCAN)
Organophosphates	Atropine and Pralidoxime
Paracetamol	N-acetylcysteine (Mucomyst)
Isoniazid (INH)	Pyridoxine (vitamin B <sub>6</sub> )
Methanol - Ethylene glycol	Ethanol - Fomepizole
Cyanide	Hydroxocobalamin
Digitalis	Specific Fab fragments

# Methods of Elimination

# FORCED DIURESIS

- ❑ It depends on renal drugs excretion by increasing urine output.
- ❑ It is useful only for drugs that are excreted either unchanged or as active metabolites, but it is not useful for drugs that are metabolized in liver and then excreted as inactive metabolites.
- ❑ Unionized and lipid soluble drugs are not excreted by kidney despite the increase of urine output because it is partially reabsorbed in renal tubules.
- ❑ Ionized drugs are excreted well by kidney.

- ❑ Urine pH manipulation leads to increase in concentration of ionized drug.
- ❑ Acidic drugs remain ionized when it is in alkaline urine .
- ❑ Basic drugs remain ionized when it is in acidic urine.

## **Types of forced Diuresis**

- A. Forced alkaline diuresis
- B. Forced acid diuresis.
- Drugs of a large volume distribution, its elimination by forced diuresis is limited.

# DIALYSIS

**Types of dialysis** : hemodialysis, peritoneal dialysis, charcoal hemoperfusion and hemofiltration.

## 1- Hemodialysis

It is useful for elimination of some drugs that is characterized by low molecular weight and size, low protein binding, high water soluble, slow metabolized and inactivated.

## 2- Hemoperfusion

It permits blood to pass through a column containing activated charcoal or activated carbon leading to toxin adsorption.

- Hemoperfusion is used for drugs that are characterized by a low volume distribution (1 - 8 L/kg), high lipid soluble, high protein bound and long half-life.

# COMMON MISTAKES

## **Corrosive Cases:**

**No Git decontamination (Ipecac or Gastric Lavage) or Charcoal**

## **Kerosene Cases:**

**No Git decontamination (Ipecac or Gastric Lavage) or Charcoal , No milk ingestion**

## **Poisoning Cases are more than 24h**

**No Git decontamination (Ipecac or Gastric Lavage)**

## **Cases of renal failure or pulmonary oedma**

**No Forced Diuresis**

# CONTRAINDICATIONS

- **Emesis ( Ipecac )**

Comatose, corrosive, kerosene, central depression, antiemetic effects, poisoning is more than 24h

- **Gastric Lavage**

Corrosive , kerosene, convulsions, poisoning is more than 24 hr

- **Charcoal**

Corrosive , kerosene

- **Cathartic**

Diarrhea

- **Forced Diuresis**

Active form of poison, shock, renal impairment, pulmonary edema, and lack of monitoring

**Thank you**