Toxidrome

Ingestion of unknown toxin substance

Focused History taking & Examination

Look for following clinical signs

1) Mental status
- Agitated
- Drowsy

2) Vital signs & Body temperature
- Blood pressure
- Pulse
- Respiratory rate

3) Pupillary Size
- Normal
- Pinpoint
- Dilated

4) Skin secretions
- Dry
- Diaphoric

Toxidrome Approach
(Toxidrome is a constellation of clinical symptoms and signs associated with a class of toxin based on the automatic effects of the toxin in question . Different classes cause different autonomic features.)

Patient is Agitated

High BP, Pulse rate & Temperature

High Respiratory rate

Dilated pupils

Dry skin & Secretions

Anticholinergic Toxidrome

Wet skin & Diaphoric

Sympathomimetic Toxidrome

Patient is Somnolent/Drowsy

NL/Low BP & Temp NL Pulse rate

Very low Respiratory rate

Pinpoint pupils

Normal skin and Secretions

Opoid Toxidrome

Low/ Normal Respiratory rate

Normal size pupils

Normal skin and Secretions

Sedative/Hypnotic Toxidrome

Low BP, Pulse rate & Temperature

Low Respiratory rate

Pinpoint pupils

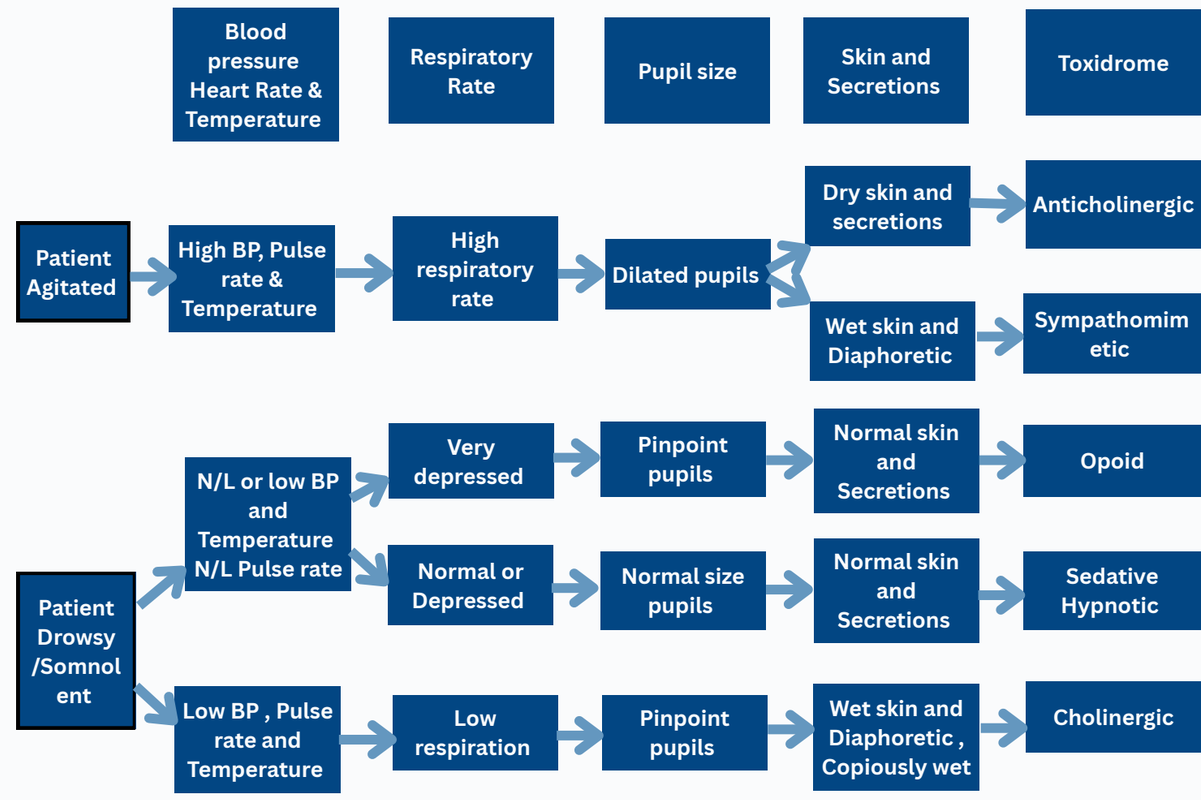
Wet skin and Diaphoric

Cholinergic Toxidrome

Management according to Resus-RSI-DEAD approach

- Resus - Resuscitation
- R - Risk assessment
- S - Supportive care
- I - Investigations
- D - Decontamination
- E - Enhanced Elimination
- A - Antidotes
- D - Disposition

Toxidrome pathway



Summary of toxidromes

Toxin	HR/ BP	Respiration	Temp.	Eyes	Skin/ secretions	Mental status
Sympatho mimetic	↑↑	↑	↑	●	Diaphoretic	Agitated
Anti Cholinergic	↑↑	↑	↑↑	●	Dry	Agitated
Cholinergic	↓↓	↓	↓	•	Copiously wet	Somnolent
Sedative Hypnotics	–	– / ↓	–	●•	Normal	Somnolent/ Coma
Opoids	–/↓	↓ ↓	–/↓	•	–	Somnolent /Coma

Treatment

1) Identify the Toxidrome
2) Resus RSI-DEAD
- **Resuscitation- ABCDE**
- **R- Risk assessment**
- **I - Investigations**

For identification and management
- **D - Decontamination**

Gastric Lavage, Activated Charcoal, Whole Bowel Irrigation
- **E - Enhanced Elimination**

Multiple doses of Activated Charcoal
Urinary alkalisation
Urinary acidification
Dialysis
Plasmapheresis
Exchange transfusion
Therapeutic Plasma Exchange (TPE)
- **A-Antidote**

Acetaminophen-Acetylcystetine, Methionine
Ethylene Glycol/Methanol - Alcohol / Fomepizole
Methaemoglobinaemia-Methylene Blue
Organophosphates-Atropine
Opoids-Naloxone
Calcium Channel Blockers - HIET
- **D-Disposition**

Ward
HDU/ICU
Transfer to tertiary care centre

Anticholinergic
- Benzodiazepines if agitated
- Antidote - **Physostigmine**

(Use physostigmine only for seizure, sedation, Delirium, SVT, Haemodynamic deterioration)

Cholinergic

Antidote- **Atropine**

1)Starting dose 0.6-3mg IV
2)Double the dose every 3-5 min till atropinization
3)Calculate the total bolus dose and give 20% of total as IV infusion

Sympathomimetics
- Treat hypertension
- Sedation only if necessary
- 1st line - **Benzodiazepine**

For agitation and delirium

Opoid

Antidote - **Naloxone**

1. 100mcg bolus
2. Repeat every 30-60 seconds untill spontaneous respiration
3. 2/3 of total dose as an infusion If patient isn't conscious

Sedative Hypnotic
- Antidote-**Flumazenil**
- Dose-0.2 mg IV

Use this cautiously, as it may precipitate withdrawal or intractable seizures

Clinical features	Sympathomimetic	Anticholinergic	Cholinergic	Sedative-Hypnotic	Opoids
	• Look - Agitated • HR - High • BP - High • Temp - NL / High • RR - NL / High • Eyes - Mydriasis • Skin - Diaphoric	• Look - Agitated • HR - High • BP - High • Temp - High • RR - High • Eyes - Mydriasis • Skin - Dry	• Look - Drowsy • HR - Low • BP - Low • Temp - NL / Low • RR - NL / Low • Eyes - Meiosis • Skin - Diaphoric	• Look - Drowsy • HR - NL • BP - NL • Temp - NL • RR - NL / Low • Eyes - NL • Skin - NL	• Look - Drowsy • HR - NL • BP - NL / Low • Temp - NL / Low • RR - Low • Eyes - Meiosis • Skin - NL

Common causes	Sympathomimetic	Anticholinergic	Cholinergic	Sedative-Hypnotic	Opoids
	• Amphetamine • Methamphetam--ine • MDMA • Caffeine • Nicotine • MAO inhibitors • Theophylline • Withdrawal from Benzodiazepine/ Baclofen • Ephedrine & Pseudoephedrine	• Atropine • Plants like Datura • Mushrooms • TCA • Benztropine • Scopolamine • Antihistamine • Antipsychotics • Muscle relaxants like Cyclobenzaprine • Some antiarrhythmics	• Organophosphate • Carbamates • Psysostigmine • Alzheimer's disease drugs • Myasthenia gravis medication • Certain mushrooms • Chemical war fare agents	• Alcohol • Benzodiazepine • Barbiturate • Baclofen • Zolpidem • Chloral Hydrate	• Morphine • Heroin • Codeine • Oxycodone • Oxymorphone • Hydromorphone • Levorphanol • Methadone • Fentanyl • Tramadol

Toxicology Expert Committee
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