

Deliriant Poisons:

Datura
Cannabis
Cocaine

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Datura Fastuosa:

→ *Datura alba* (white-flowered plant)

→ *Datura niger* (deep purple-flowered plant)

→ fruits are spherical & have sharp spines (thorn-apple) & contains upto 500 yellowish-brown seeds.

→ flowers are bell-shaped

→ contains 0.2 - 1.4% hyoscine/scopolamine, hyoscamine, traces of atropine.

Alkaloids: a complex substance having a nitrogenous base (found in various plants).

→ chemically, it behaves like an alkali (reacts with acids to form salt & water)

→ quality depends on the pyridine nucleus.

→ Examples: • Atropine • Hyoscine • Morphine • Quinine
•strychnine • Aconitine • Ergotoxine • Cocaine • Codeine

Action: initial stimulation of higher brain centres → stimulation of motor neurons

centres \rightarrow depression \rightarrow paralysis.
 \rightarrow peripheral anticholinergic (parasympatholytic) action.

Signs & Symptoms:

→ contact dermatitis in sensitive persons.

- bitter taste
- dryness of mouth & throat
- difficulty in talking
- hoarseness of voice
- congested conjunctivae
- widely dilated pupils, loss of accommodation
- light reflexes are initially - sluggish, later - absent
- dysphagia
- burning pain in stomach
- vomiting
- face becomes flushed
- unilateral mydriasis (Corricker's pupil)

- Mental changes: — restlessness — agitation
- Vomiting retention
- skin: dry & hot
- ↑ muscle tone & deep reflexes (muscular spasm & convulsions)
- scarlatin rash / exfoliation of skin
- Hallucinations, delusions → Deep sleep, coma
- rapid pulse (120-140 bpm)
- ↑ respiration
- ↑ temperature (by 2-3°)
- Delirium

8 D's:

- Dryness of mouth
- Dry, hot skin
- Drowsiness
- Dysphagia
- Drunken gait
- Death due to
- Dilated pupils
- Delirium
- respiratory failure

Fatal dose: 0.6-1 g (100-125 seeds)

Fatal Period: 24 hours

Treatment:

1] Emetics

- 2] Stomach wash with a weak solution of tannic acid.
- 3] Activated charcoal & cathartic.
- 4] Wash-out lower bowel frequently.
- 5] Physostigmine 1 mg i.v./i.m. at hourly intervals.
- 6] Pilocarpine nitrate 5mg sc. (can be repeated after 2 hours)
- 7] Avoid morphine (due to risk of depression of respiratory centre)
- 8] Delirium → bromides, short-acting barbiturates
- 9] Light diet, free purgation
- 10] Symptomatic management.

PM Appearances: those of asphyxia

→ seeds resist putrefaction for a long time.

Circumstances of Poisoning:

- 1] Crushed / powdered seeds are used by criminals for stupefying a victim prior to robbery / rape / kidnapping ⇒ **Road poison.**
- 2] Not used for suicide.
- 3] Homicide is very rare.
- 4] Sometimes used as an abortifacient.
- 5] Has aphrodisiac properties

A person suffering from delirium of datura is not criminally responsible for his act.

Hydrocyanic test: Drop of solution to be tested is put into the eyes of a cat → pupils dilate within 30 mins if Datura is present (due to atropine).

$\left. \begin{array}{l} \text{Atropa belladonna} = \text{deadly nightshade} \\ \hookrightarrow \text{active principle: } \underline{1-\text{hyoscyamine}}, \text{atropine, scopolamine} \\ \rightarrow \text{muscimol antagonists.} \end{array} \right\}$

Cannabis Sativa/Indica: a.k.a Indian hemp

→ active principle is present in its resin ⇒ cannabinol (inert) $\xrightarrow{\text{exposure to heat}}$ converted to very active isomeric tetrahydrocannabinols (THC)

→ CNS stimulant

→ a.k.a. Dope / weed / hash / hashish / bhang.

→ most widely used illicit drug in the world.

Signs & Symptoms:

- Small doses: • Euphoria • Heightening of subjective experience
- Passivity • Disorientation
- Moderate doses: above effects intensified with
 - impaired immediate memory function
 - lapses of attention
- High doses: • changes in body image • masked sensory distortion
 - depersonalisation

Symptoms of Intoxication:

a] Psychiatric: • feeling of detachment, depersonalisation • euphoria, elation

→ irrelevant thoughts, decreased concentration

→ increased awareness of stimuli

→ feeling of precordial distress & tightness in chest.

→ maladaptive behavioural effects (impaired judgement)

→ Speech changes: rapid, impaired

b] Physical: • ↑ appetite & thirst • nausea, dizziness • dysesthesias

• somnolence • paraesthesiae • restlessness • ataxia

• tremors • dry mouth • tachycardia

Fatal Dose: • Charas - 2g • Ganja - 8g [THC - 30 mg/kg]

Fatal Period: Several days.

Treatment:

- 1] Stomach wash or emesis, activated charcoal, cathartic.
- 2] 100 mL of 50% glucose + 2mg naloxone + 100 mg thiamine i.v.
- 3] 5-10 mg diazepam (in case of violence/aggression)
- 4] Assurance.
- 5] In case of flashbacks: anti-anxiety &/or anti-psychotic drugs.
- 6] Psychotherapy.

PM Appearances: those of asphyxia

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Chronic Poisoning: tolerance & psychological dependence develop with repeated use.

- Excess use \Rightarrow degeneration of CNS & insanity.
- \downarrow serum testosterone, \downarrow sperm count, gynaecomastia, impotence.
- loss of appetite, weakness, wasting
- tremors, sleepy facial expression, red eyes
- Rarely \Rightarrow auditory & visual hallucination, delusion of persecution (Hashish insanity)
- Person may run amok \Rightarrow psychic disturbance marked by a period of depression, followed by violent attempts to kill (impulse to murder).
- Chronic use may lead to amotivational syndrome \Rightarrow loss of age appropriate behaviour
- no physiological dependence or addiction.

Circumstances of Poisoning:

- 1] Overindulgence
- 2] Accidental ingestion / inhalation
- 3] Road poisoning (to stupefy persons to facilitate robbery).
- 4] used as an aphrodisiac (supposed to increase duration of coitus).

Cocaine: obtained from leaves of *Erythroxylum coca*.

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→ colourless, odourless, crystalline substance with bitter taste.

→ alkaloids present: — ecgonine — hygrine — cinnamyl cocaine.

→ used as a local anaesthetic

→ a.k.a Coke / Snow / White Lady / Cadillac.

→ Crack = Cocaine + Baking soda + water

Action: decongests terminal nerves & causes vasoconstriction at the site of

→ powerful CNS stimulant (short duration) → depression. application.

→ sympathomimetic properties

Cocaine

Amphetamine

Nicotine

Barbiturates

} can be found in the stomach, even when given parenterally.

Signs & Symptoms:

1] Stage of Excitement:

- bitter taste & dryness in the mouth
- loss of depression & fatigue
- dilated pupils
- ↑ temperature
- tremors, convulsions
- dysephagia
- pallor of skin
- cyanosis
- hypertension

may lead to cerebral bleeding / rupture of aneurysm

- feeling of well-being
- ↑ pulse, respirations
- sweating
- exaggerated reflexes
- tingling / numbness in hands & feet

2] Stage of Depression:

- feeble respirations
- profuse perspiration

• collapse, convulsions, death (due to respiratory failure / cardiac arrest / vascular collapse).

→ Cocaine + Heroin (injection) = Speedball

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Fatal Dose: 1 gm orally

Fatal Period: few minutes to few hours

Complications:

- Cerebrovascular accidents
- Subarachnoid / Intracerebral haemorrhage
- Aortic dissection

- Myocardial Infarction
- Skin necrops
- Pulmonary infarcts

Treatment:

- 1] If taken orally \Rightarrow gastric lavage with warm water containing KMnO_4 / charcoal / tannic acid.
- 2] If applied to nose / throat \Rightarrow wash-out mucous membrane with water.
- 3] If injected \Rightarrow apply a ligature above the part.
- 4] For convulsions \Rightarrow Chloroform or short-acting barbiturates.
- 5] Amyl nitrate \Rightarrow antidote \Rightarrow given by inhalation
- 6] Airway & circulatory stabilisation.
- 7] Thiamine 100 mg i.v.
- 8] Naloxone hydrochloride 2 mg i.v.
- 9] General symptomatic treatment.

PM Appearances: intense asphyxial signs

→ Pulmonary congestion & oedema (lungs weigh 3-4 times the normal)

Cocaine Habit: [Cocainism / Cocainophagia / Cocainomania]

→ Chronic abusers can tolerate ~ 10 gm / day.

- digestive disturbances, anorexia
- insomnia
- salivation
- sunken eyes, dilated pupil
- tachycardia, tachypnoea
- black tongue & teeth

→ Magnan's symptom / Cocaine bugs \Rightarrow feeling of grains of sand lying under the skin
or small insects creeping on the skin giving rise to itching sensation \rightarrow excoriation
 \rightarrow irregular scratches / ulcers.

Circumstances of Poisoning:

- 1] rarely used for homicide / suicide.
- 2] Accidental \Rightarrow addiction
- 3] Aphrodisiac \Rightarrow \uparrow duration of sexual act (by paralysing sensory nerves of glans penis).