APPROACH TO THE PATIENT WITH AN UNKNOWN OVERDOSE

Gopalan

Approach to the Patient with an Unknown Overdose

Learning objectives:

- Define a systematic and consistent approach
- Establish a high yield physical exam (toxidromes)
- Identify the minimum essential tests
- Predict toxicity
- Involve the Poison Centre
- Decide on safe discharge

http://www.youtube.com/watch?v=BKPygvCbqsc

Approach to the Patient with an Unknown Overdose

- Need systematic and consistent approach
- Involves recognition, identification, assessment and prediction
- Prognosis and clinical course of patient depends on quality of care delivered within first few hours
- Management

The Poisoned Patient

- ***Treatment***
  - ABCs
  - Dextrose, naloxone, thiamine
  - Decontamination
  - Enhanced Elimination
  - Focused Therapy/Antidotes
  - Get Tox Help
- ***Diagnosis***
  - History
  - Physical Exam
  - Toxidrome Recognition
  - Diagnostic Tests

Erickson et al, Managing the patient's unknown overdose ingestion. Emerg Med 1996;28:78-88

History

- Which drug(s) was / were taken?
- When?
- How much?
- PMHx, previous exposures

Toxidrome Case 1

- 16 year old female; out late the night before
- Brought by parents with altered LOC
- In ED, she is hallucinating
- Vitals: BP 140/90, HR 120, RR 30, T 39.0 C
- Pupils are 6 mm bilat
- Lower abdomen fullness
- Skin is dry, appears flushed

Toxidrome Case 2

- 18 year old male; multiple visits to ED with behaviour issues
- Had seizure at home
- In ED, he is tremulous and agitated
- Vitals: BP 150/100, HR 130, RR 34, T 39.0 C
- Pupils: 6 mm bilat
- Skin: Diaphoretic
- Old chart indicates he is on methylphenidate

Toxidrome	Mental Status	Pupils	Vital Signs	Other	Examples
Anticholinergics	Hypervigilance Agitation Hallucinations Delirium Coma	Mydriasis	⇧Temp ⇧HR ⇧BP ⇧RR	Dry, flushed Dry mucosa ⬇BS Urinary retention	Antihistamine TCA Jimson Weed Atropine
Sympathomimetic	Hyperalert Agitation Hallucinations Paranoia	Mydriasis	⇧HR ⇧Temp ⇧BP ⇧RR	Diaphoresis Tremors Sz Hyperreflexia	Cocaine Amphetamine Theophylline Caffeine Bath Salts

Toxidrome Case 3

- 37 year old male; found unresponsive on side of road
- In ED, GCS 3
- Vitals: BP 90/60, HR 60, RR 12, T 35.6 C
- Pupils: 2 mm bilat
- Skin: Track marks

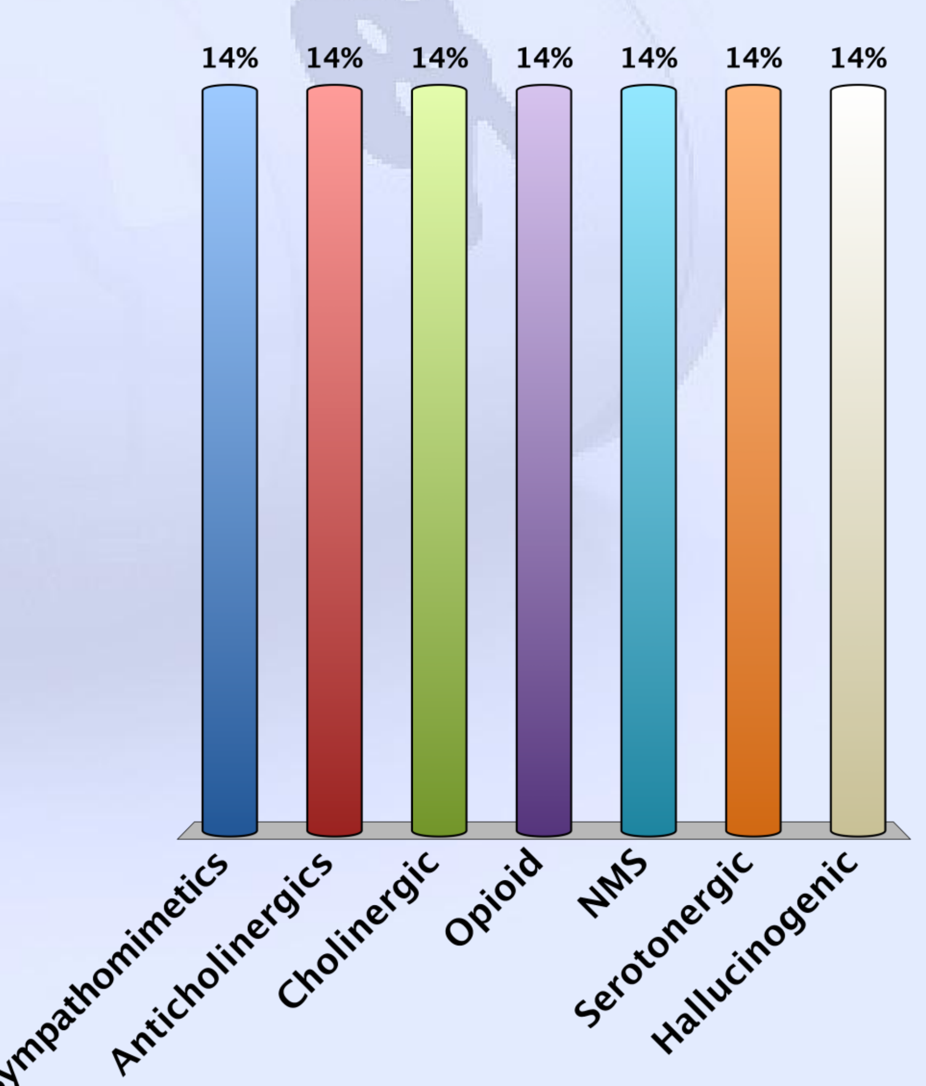
Toxidrome	Mental Status	Pupils	Vital Signs	Other	Examples
Opioid	CNS Depression Coma	Miosis	↓Temp ↓HR ↓BP ↓RR	Pulmonary Edema Needle Marks Hyporeflexia	Heroin Morphine Methadone

Toxidrome Case 4

- 3 year female rushed to ED
- Swallowed unknown liquid in garage
- In ED, lethargic with marked respiratory distress
- Vitals: BP 80/60, HR 140, RR 44
- Pupils: 2 mm bilat
- Skin: diaphoretic, increased tearing
- Lungs: bilat diffuse wheezes
- Marked oral secretions, garlic breath

What is the toxidrome?

A. Sympathomimetics
B. Anticholinergics
C. Cholinergic
D. Opioid
E. NMS
F. Serotonergic
G. Hallucinogenic



Toxidrome	Mental Status	Pupils	Vital Signs	Other	Examples
Cholinergics	Confusion Coma	Miosis	⬇HR, ⇧HR ⇧BP ⇧RR, ⬇RR	***Muscarinic*** Diarrhea Diaphoresis Urination Bronchosecretions Emesis Lacrimation Lethargic Salivation ***Nicotinic*** Weakness Tremors Fasiculation Seizures	OrganoP Insecticides Nerve Agents Pilocarpine

Toxidrome Case 5

- 17 year old male; out all night long
- Brought in by parents because not acting self
- Speaking with a new Australian accent
- Vitals: BP 140/90, HR 110, RR 30, T 38.6 C
- Pupils: 6 mm bilat, nystagmus

Toxidrome	Mental Status	Pupils	Vital Signs	Other	Examples
Hallucinogenic	Hallucinations Depersonalization Agitation	Mydriasis	⇧Temp ⇧HR ⇧BP ⇧RR	Nystagmus	PCP LSD Designer Amphetamines Ketamine

Toxidromes Case 6

- 76 year old man from nursing home
- Sent for assessment of fever, more confused than usual!
- In ED, somnolent
- Vitals: BP 150/100, HR 110, T 39.6 C
- Diaphoretic, severe muscle rigidity in upper and lower limbs
- Nursing home drug profile shows that he was started on olanzapine 5 days ago

Toxidrome Case 7

- 23 year old female; brought to ED by friend
- Anxious, distressed, confused
- Vitals: BP 160/100, 110, 20, T 38.4 C
- Diaphoretic, tremulous
- Rigidity of lower limbs, shaky eye movements, brisk deep tendon reflexes
- Friend states that patient has been very depressed lately and went to see FP yesterday about starting meds for depression

What is the toxidrome?

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B. Anticholinergics
C. Cholinergic
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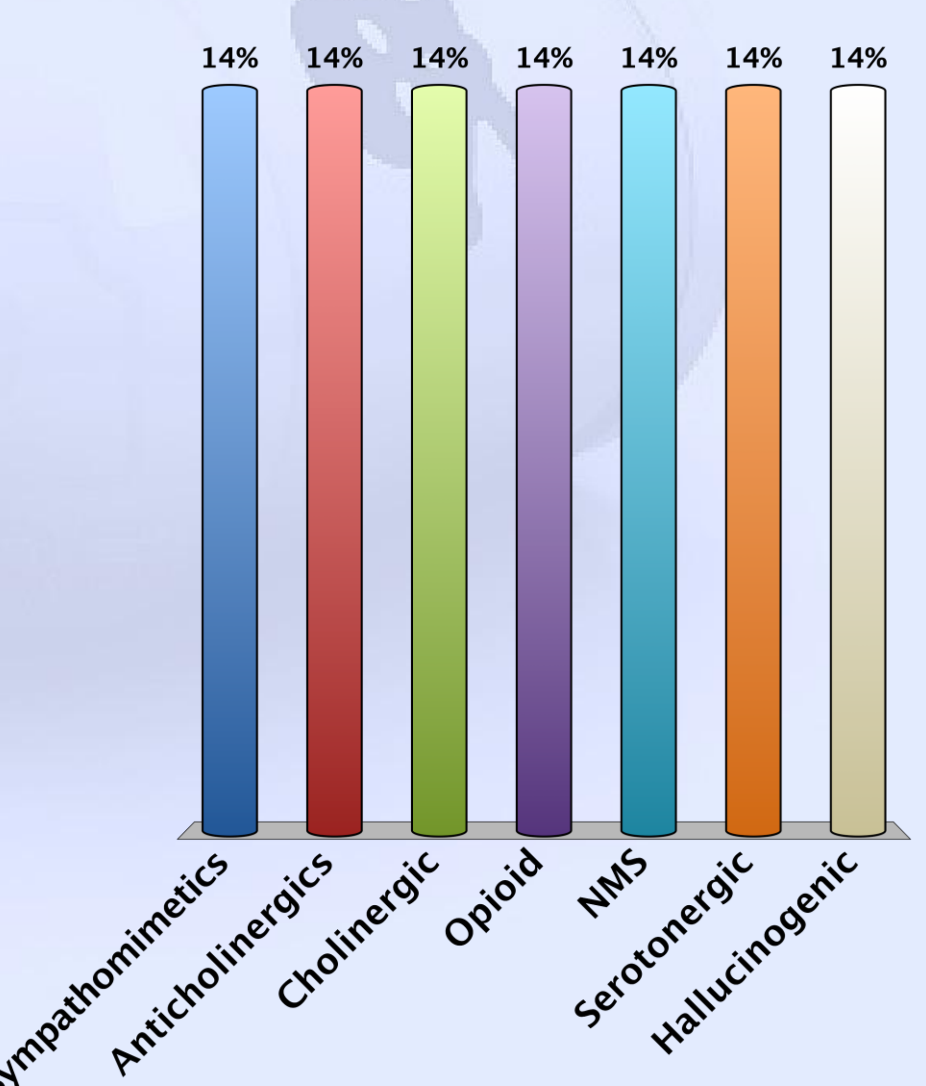


Toxic Vital Signs

- Temperature
- HR
- BP
- RR
- Neurological Exam: mental status, rigidity
- Eye: nystagmus
- Skin
- Odors

Investigations - Labs

- CBC, Lytes, BUN, Cr, Gluc, ABG, βhCG
- Anion Gap = Na – (Cl + HCO_3)
- Serum Osm = 2Na + Glucose + Urea + (1.2)EtOH

Investigations - Urine Tox Screens

ROUTINE URINE TOX SCREENS

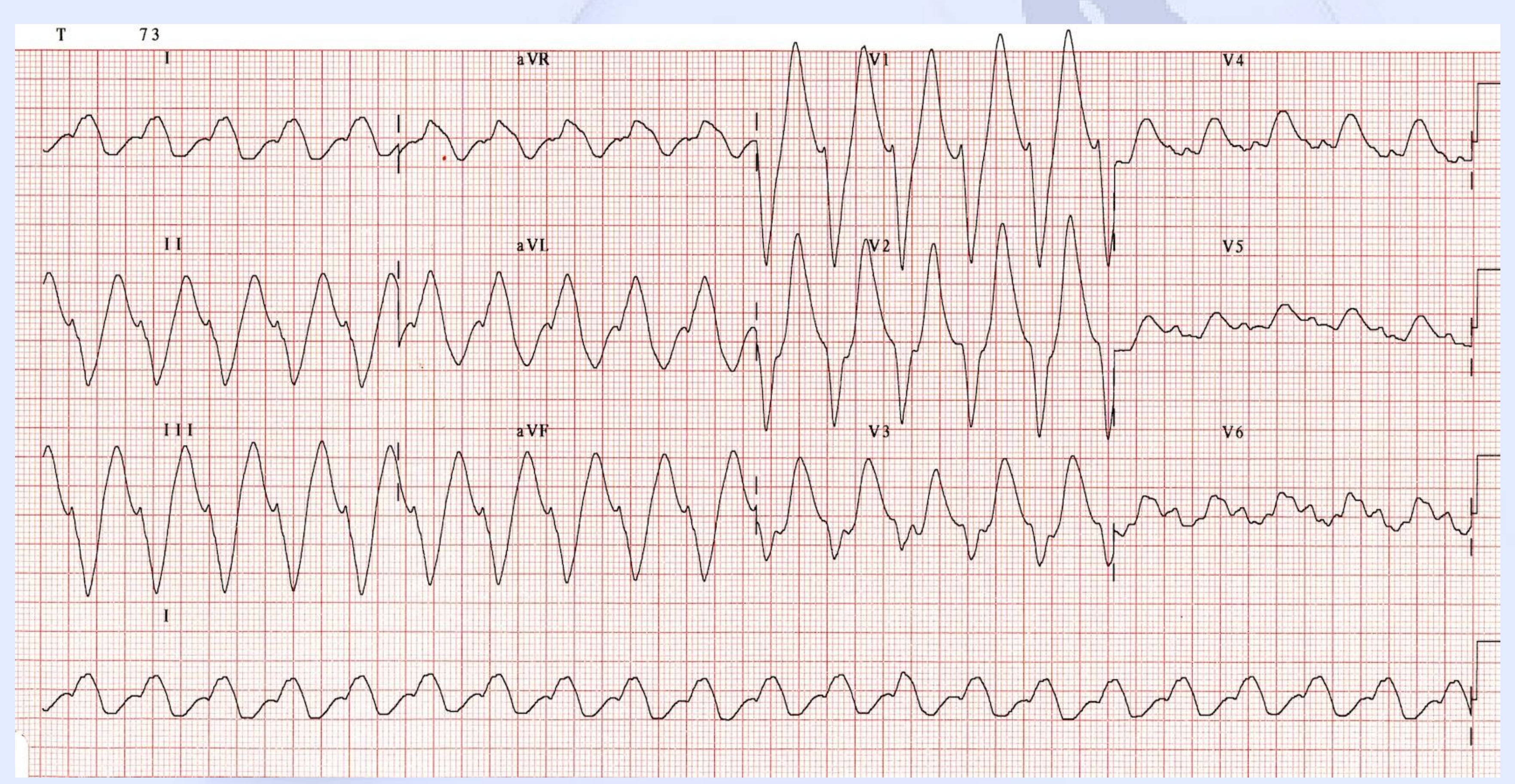
ARE NOT Useful

in the Acute Setting

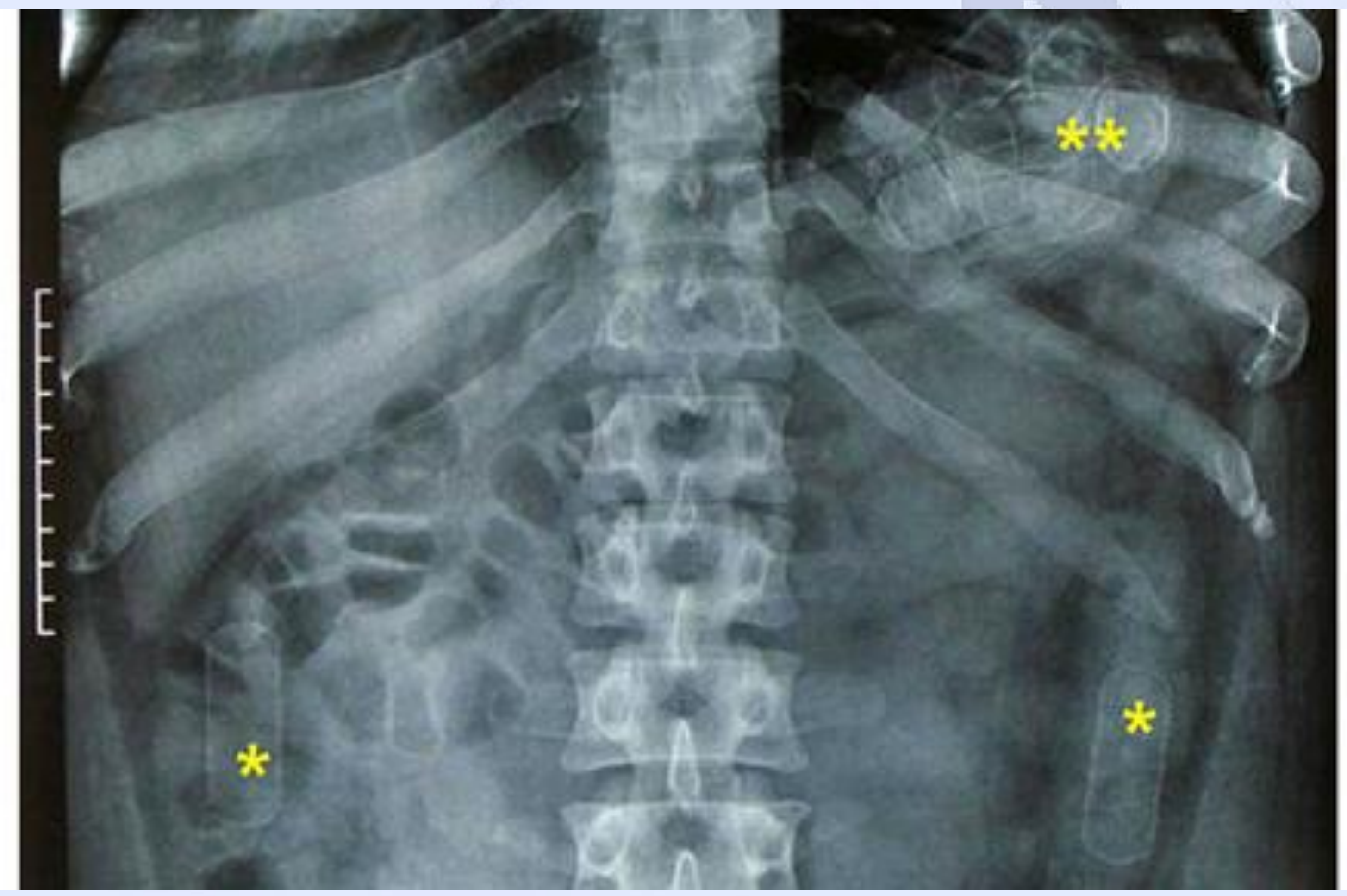
Investigations - Tests

- Quantitative blood tests to predict toxicity or guide specific therapy
- Acetaminophen, ASA, EtOH levels
- Look for a Tox diagnosis in patients with prolonged coma, seizure, metabolic acidosis

Investigations - ECG

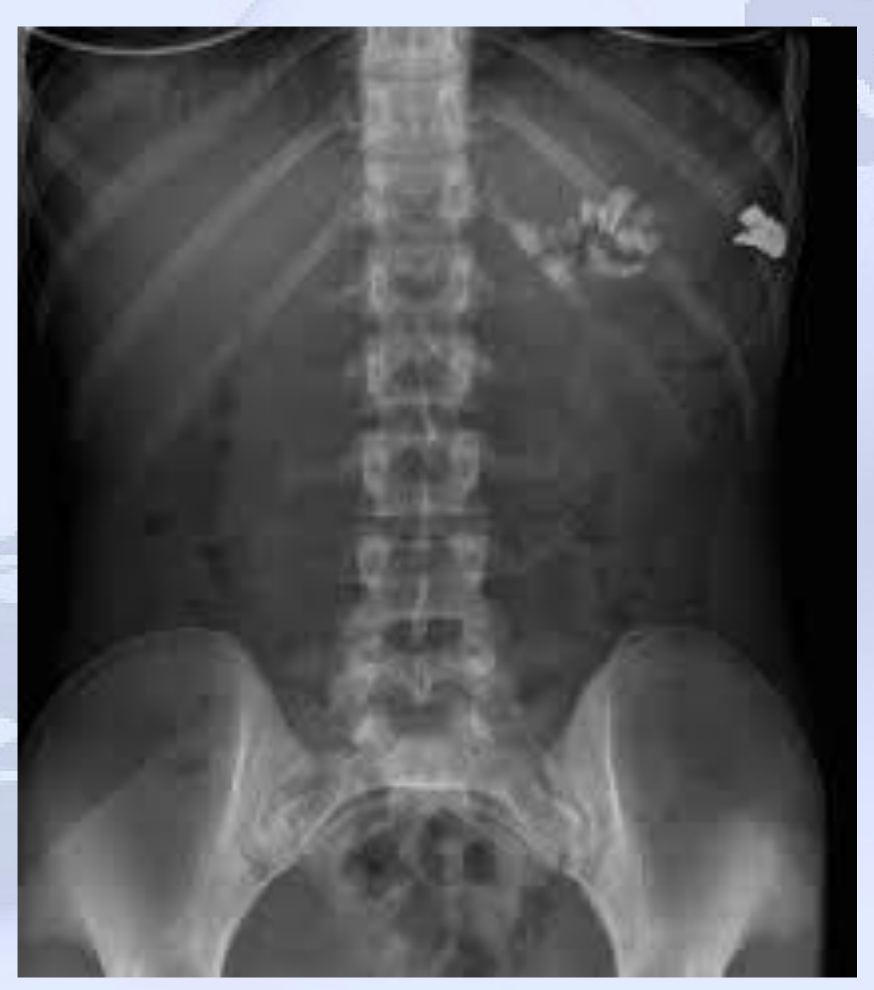


Investigations - AXR



http://img.medscape.com/pi/features/slideshow-slide/foreign-objects/fig9.jpg

Investigations - AXR



http://lifeinthefastlane.com/2009/10/top-ten-foreign-bodies/

Indications of Severe Toxicity

- Ingested quantity
- Serious delayed effects
- Natural removal mechanism is impaired
- Clinical condition deteriorating despite maximum supportive care
- Clinical evidence of severe toxicity

Orlowski JM, et al. Extracorporeal removal of drugs and toxins, Clinical toxicology 2001. pp 43-50

Poison Centre

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Disposition

- Mild toxicity: observe for 4-6 hours; until asymptomatic
- Mod/severe toxicity: needs admission
- Some agents require prolonged observation
- All patients presenting with intentional poisoning should have a Psychiatric evaluation

Disposition

- Presence of *any* of following clinical criteria predicted a complicated hospital course:
  - $PaCO_2 > 45$
  - Intubated
  - Seizures
  - Unresponsive
  - Non-sinus cardiac rhythm
  - 2nd or 3rd degree block
  - SBP < 80
  - QRS > 0.12s

Brett AS, et al. Predicting the clinical course in intentional drug overdose. Arch Intern Med 1987; 147:133

Toxic Time Bombs

- Acetaminophen
- Anticoagulants
- Antimetabolites
- Body packers
- Enteric coated products
- Heavy metals
- Iron
- Lithium
- Lomotil
- Methadone
- MAOIs
- Hypoglycemics
- Sotalol
- SR products
- Thyroids meds
- Toxic alcohols
- Valproic acid
- Tricyclics

Pitfalls

- Ingestion of multiple agents common
- Not all altered mental status is Tox: Consider trauma, CVA, sepsis, metabolic causes

Poisoned Patient

☠ ***Treatment***

- ABCs
- Dextrose, naloxone, thiamine
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☠ ***Diagnosis***

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Questions?