

# APPROACH TO ACUTE POISONING...

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# When should you suspect poisoning?

- Unexplained illness in a previously healthy individual
- A history of psychiatric problems
- A recent change in health, economic or social status
- Illness while working with chemicals, or after ingesting food, water or drugs
- Recent arrival from foreign country

# Acute poisoning...

Common med emergency- 5%are hosp, commonest route

– ingestion, Mortality – 0.03%, 1-2 % in suicidal

- Common cause of coma in young

Types – Accidental, Suicidal ,Homicidal-**MLC MUST**

- Leading cause of death – CO .

ALP & OP: 85% of poisoning cases in North India

- West – Paracetamol ,Polydrug

Results of the WHO/EURO multicentre study on parasuicide. Acta

Psychiatr Scand 1996;93:327–38

# APPROACH...History

Conscious- **Substance – amount /type**

- Associated – alcohol/other drug
- Time taken

Unconscious- Relatives

- Identification – database
- Why did u take it?\*\*\*\*\*
- Any co morbid conditions
- Social H/O- family problems etc

Gunnell D, Ho D, Murray V. Medical management of deliberate drugover dose: a neglected area for suicide prevention? Emerg Med J,2004;21:35–8.

# APPROACH...Factors indicating serious self harm intent and high likelihood of further significant self harm

- Sex (male)
- Age (elderly)
- Recently bereaved
- Unemployed
- Suicide note
- Evidence of planning of overdose
- Presence of terminal illness
- History of depression
- Found in isolated place by another person after taking overdose

**Camidge DR, Wood RJ, Bateman DN. The epidemiology of self-poisoning in the UK. Br J Clin Pharmacol 2003;56:613–19.**

# Clinical Features

- VITAL SIGNS
- A,B .C
- Pupils –↓- Morphine, clonidine, OP  
↑- Amphetamine, alcohol, cocaine,  
anti –H, dhatura
- RR- ↓- morphine, benzodiazepines  
↑- salicylates
- BP- ↓- TCA, haloperidol  
↑- cocaine,

# Upper airway obstruction

- Can occur due to edema of oropharynx/larynx/glottis
- Stridor with respiratory distress can rapidly progress to complete airway obstruction. Choking sign may be present
- It is a common pre-hospital cause of death
- Hypoxia occurs late so SpO<sub>2</sub> can remain normal till obstruction is complete
- Aerosolized adrenaline is good though evidence is poor

# CLINICAL FEATURES ....

- HR - ↑ TCA, Theo. anti-H, Digoxin
  - ↓ Digoxin, B-Blockers, CCB. Opioids
- Temp- ↑- Ecstasy, salicylates, SSRI
  - ↓- CNS dep, opioids, CPZ
- Cyanosis- MethHbinaemia, CNS Dep, Dapsone
- Skin- needle marks, puncture,



# Clinical Features...FEW THUMB RULES

- RUQ PAIN – paracetamol
- Epigastric pain – Salicylates, NSAIDs
- CNS
  - Cerebellar signs – AED, Alcohol
  - Extrapyramidal – CPZ, Haloperidol, Perinorm
  - Seizures-Theo, NSAIDs, TCA, anti depressants

sympathomimetic

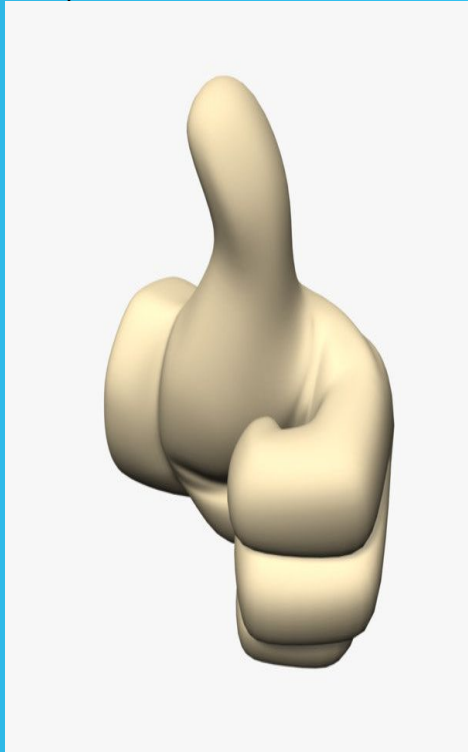
narcotics

anticholinergic

Sedatives/  
hypnotic

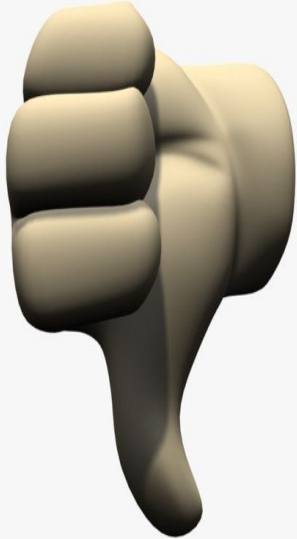
serotonergic

cholinergic



	anticholinergic	sympathomimet ic	serotonergic
	Delirium	Delusions paranoia	Confusion Agitation
	Dilated pupils	Dilated pupils	
	Myoclonus	Hyperreflexia	Hyperreflexia
	Seizures	Seizures	Tremor Fasciculation
	Hyperpyrexia	Hyperpyrexia	Hyperpyrexia
	Tachycardia	Tachycardia Hypertension	Tachycardia
	Dry flushed skin	Diaphoresis	Diaphoresis
	Arrhythmias	Arrhythmias	
	Urinary retention		
	↓ bowel sounds		

Reddys Testbook of  
Toxicology

	<b>Narcotic</b>	<b>Sedative / hypnotic</b>	<b>cholinergic</b>
	Coma	Coma	Confusion
	Miosis	No miosis	Miosis
	Hyporeflexia	Hyporeflexia	
	Hypothermia	hypothermia	
	bradycardia	No bradycardia	Bradycardia
	Hypotension	Hypotension	
	Respiratory depression	Respiratory depression	Respiratory depression
			Salivation
			Lacrimation
			Urinary & faecal incontinence

# DIAGNOSIS...

- H/o, Clinical / Exam
- LAB- Qualitative screening of URINE –
  - Benzodiazepines, cocaine, ecstasy  
opioids, cannabis
  - Blood – Gas Chromatography-mass Spectroscopy
  - ROLE OF TOXICOLOGICAL LAB-LAVAGE FLUID
  - CXR, ECG, Metabolic profile

# ECG

- TCA
- ANTIPILEPTICS
- THEOPHYLLINS
- BARBITURATES
- BENZODIAZAPINE
- ANTICHILINERGICS

# CXR

- ORGANOPHOSPHATES
- COCAINES
- OPIODS
- EXCLUSION OF ASPIRATION
- ASSOC. TRAUMA

# Fundamentals of poisoning management

- P – Prevention of Absorption  
Prevention of recurrence
- E – Elimination of poison
- A – Antidotes
- S – Supportive Care



# Prevention of further poison absorption (GI decontamination)...

- Emesis – NO Role of IPECAC
- Gastric lavage
  - Technique- LAVAGE TUBE??
  - Effect- 30 min
  - Contraindications-CORROSIVES

American Academy of Clinical Toxicology and European Association of Poisons Control Centres and Clinical Toxicologists. Position statement: gastric lavage. J Toxicol Clin Toxicol 1997;35:711–19.

# Prevention of further poison absorption (GI decontamination)...

- Activated charcoal- Multiple dose
  - Dose- 50 gm stat then 50gm 4-6 hrly
  - Effect- 30 min= 51%, 60 min= 36
  - Drugs that do not bind- **Lithium, iron, alcohol, acids & alkalis**

**American Academy of Clinical Toxicology; European Association of Poisons Centres and Clinical Toxicologists.**

**Position statement and practice guidelines on the use of multi-dose activated charcoal in the treatment of acute poisoning. J Toxicol Clin Toxicol 1999;37:731–51.**

# GI DECONTAMINATION ...

- Charcoal effective in most cases within 1 hr
- Effective in –
  - Tegretol, Dapsone, Quinine, Theo
- WHOLE BOWEL IRRIGATION
- Polyethelene Glycol solution
  - 8 ml /gm of charcoal – till rectal effluent is clear

**EFFECTIVE – Severe lithium, iron, theo....**

American Academy of Clinical Toxicology and European Association of Poison Control Centres and Clinical Toxicologists. Position statement: whole bowel irrigation. J Toxicol Clin Toxicol 1997;35:753–62.

# Increasing poison elimination...

- **Forced Diuresis & change in urinary pH**

1 L of 1.26 % Sodabcarb solution

over 3 hours – keep urinary pH – 7.5 – 8.5

CHLORPROPAMIDE + BARBITURATES +  
RHABDOMYOLYSIS

## **Extracorporeal removal**

- Peritoneal dialysis
- Hemodialysis
- Hemoperfusion

# ANTIDOTES...

- Anticoagulants      Vit K, FFP
- B –Blockers      **Glucagon**
- CCB      Calcium
- Cyanide      Na thiosulfate, Nitrites
- Digoxin      Fab Antibodies
- Ethylene Glycol/methanol Ethanol
- **Benzodiazepines**      **Flumazenil**

# ANTIDOTES...

- Iron Desferroxime
- Lead Di sod Ca Edetate
- Mercury Dimercaprol
- Opioids Naloxone
- Organo Phos Atropine, Oximes
- Paracetamol NAC, Methionine
- **Methaemoglobinaemia Methylene blue**

# Supportive care...

- Metabolic care
  - Temperature
  - Acid-base balance
  - Liver & renal dysfunction
- Secondary complications
  - Aspiration pneumonia
  - Sepsis
  - Thromboembolism
  - Pressure sores

# Supportive care...

- **Care of Eyes**

- Irrigate with water /NS
- If pain persists – Slit lamp Exam for corneal damage

## **Care of SKIN**

- **Remove clothing**
- **Wash , dry powder**



# Supportive care...

- **CNS**

- **Control of SEIZURES**

- IV Diazepam , or Haloperidol

- Care of Comatose -- Bowel / bladder, skin

- CVS**

- Treat Arrhythmias

# PREVENTION OF REEXPOSURE...

- **ADULT EDUCATION**
- **CHILD PROOFING**
- **PSYCHIATRIC REFERRAL**

# POISON INFO CENTRE

- **National Poisons Information Centre (NPIC)**
- **Department of Pharmacology**
- **All India Institute of Medical Sciences**
- **New Delhi, India**
- **Tel. No.: 26589391, 26593677, Fax: 26850691, 26862663**
- **Email: [npicaiims@hotmail.com](mailto:npicaiims@hotmail.com)**

# OP poisoning

- Recent advances

# Current concepts and controversies in OP management



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# OP Poisoning & GI Decontamination

File | C:/Users/DRH/Downloads/opupdate-portheadlandslideshow-120208171428-phpapp02.pdf


www.outlook.com LMS OPEMR Login Discharge Summar... IP EMR Login

opupdate-portheadlandslideshow-120208171428-phpapp02.pdf 12 / 32

SACTRC ANU

## Dangerous GI decontamination

- “Iatrogenic” component of mortality & morbidity
- 14 consecutive OP poisonings
  - 7 Aspiration Pneumonia
  - 2 Deaths



Images courtesy of Dr Michael Eddleston

**The Hazards of Gastric Lavage for Intentional Self-Poisoning in a Resource Poor Location** ClinTox 2007;45(2):136-43

Search the web and Windows

# AChE levels

The screenshot shows a web browser window displaying a ResearchGate article. The browser's address bar shows the URL: [https://www.researchgate.net/publication/51813321\\_Evaluation\\_of\\_the\\_Test-mate\\_ChE\\_Cholinesterase\\_Field\\_Kit\\_in\\_Acute\\_Organophosphorus\\_Poisoning](https://www.researchgate.net/publication/51813321_Evaluation_of_the_Test-mate_ChE_Cholinesterase_Field_Kit_in_Acute_Organophosphorus_Poisoning). The ResearchGate interface includes a search bar, navigation links (Home, Questions, Jobs), and a list of article statistics: Research Interest (13.8), Citations (25), Recommendations (0 new), and Reads (305 new). The article title is "Evaluation of the Test-mate ChE (Cholinesterase) Field Kit in Acute Organophosphorus Poisoning", published in December 2011 in the *Annals of emergency medicine* 58(6):559-564.e6. The authors listed are Bishan Rajapakse, Horst Thiermann, Peter Eyer, and Nick Buckley. The abstract text is partially visible, starting with "Measurement of acetylcholinesterase (AChE) is recommended in the management of organophosphorus poisoning, which results in 200,000 deaths worldwide annually. The Test-mate ChE 400 is a portable field kit designed for detecting occupational organophosphorus exposure that measures RBC AChE and plasma cholinesterase (PChE) within 4 minutes. We evaluate Test-mate against a reference laboratory test in patients with acute organophosphorus self-poisoning. This was a cross-sectional comparison study of 14 patients with acute organophosphorus poisoning between May 2007 and June 2008. RBC AChE and PChE were measured in 96 and 91 samples, respectively, with the Test-mate ChE field kit and compared with a reference laboratory, using the limits of agreement method (Bland and Altman) by statistics and Spearman's

Research Interest 13.8  
Citations 25  
Recommendations 0 new  
Reads 305 new  
[See details](#)

Overview Stats Comments Citations (25) References (26) Related research (10+) Full-text requested

**Abstract**

Measurement of acetylcholinesterase (AChE) is recommended in the management of organophosphorus poisoning, which results in 200,000 deaths worldwide annually. The Test-mate ChE 400 is a portable field kit designed for detecting occupational organophosphorus exposure that measures RBC AChE and plasma cholinesterase (PChE) within 4 minutes. We evaluate Test-mate against a reference laboratory test in patients with acute organophosphorus self-poisoning. This was a cross-sectional comparison study of 14 patients with acute organophosphorus poisoning between May 2007 and June 2008. RBC AChE and PChE were measured in 96 and 91 samples, respectively, with the Test-mate ChE field kit and compared with a reference laboratory, using the limits of agreement method (Bland and Altman) by statistics and Spearman's

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# AChE levels...our studies

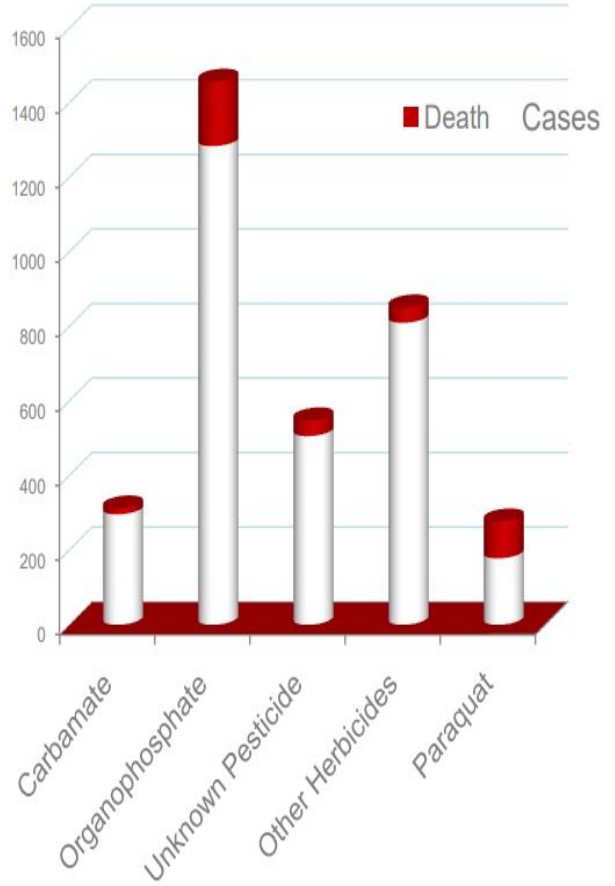
The screenshot shows a web browser window with multiple tabs. The active tab is the ResearchGate article page. The browser's address bar shows the URL: [https://www.researchgate.net/publication/51813321\\_Evaluation\\_of\\_the\\_Test-mate\\_ChE\\_Cholinesterase\\_Field\\_Kit\\_in\\_Acute\\_Organophosphorus\\_Poisoning](https://www.researchgate.net/publication/51813321_Evaluation_of_the_Test-mate_ChE_Cholinesterase_Field_Kit_in_Acute_Organophosphorus_Poisoning). The ResearchGate navigation bar includes 'Home' (with a red notification badge '18'), 'Questions', and 'Jobs'. A search bar is present with the placeholder text 'Search for researchers, publications, and more'. The article title is 'Evaluation of the Test-mate ChE (Cholinesterase) Field Kit in Acute Organophosphorus Poisoning'. Below the title, it states 'December 2011 · Annals of emergency medicine 58(6):559-564.e6' and 'DOI: 10.1016/j.annemergmed.2011.07.014'. The authors listed are Bishan Rajapakse, Horst Thiermann, Peter Eyer, and Nick Buckley. On the right side, there are statistics: Research Interest (13.8), Citations (25), Recommendations (0 new), and Reads (305 new). Below these statistics are tabs for 'Overview', 'Stats', 'Comments', 'Citations (25)', 'References (26)', and 'Related research (10+)'. A 'Full-text requested' button is visible. The abstract text is partially visible, starting with 'Measurement of acetylcholinesterase (AChE) is recommended in the management of organophosphorus poisoning...'. At the bottom of the page, there are four action buttons: 'Recommend', 'Follow', 'Share', and 'Start a discussion'. A light blue box with the text 'our cases donot' is overlaid on the bottom right of the page.

our cases donot





# Agents of poisoning





# Spectrum of disease

- Acute cholinergic syndrome
  - Immediate onset
- Intermediate Syndrome
  - Delayed respiratory failure (24-96hrs)
  - Nerve conduction can predict weakness
- OP induced delayed peripheral neuropathy

# Intermediate and late syndromes

- Often missed



THANK YOU