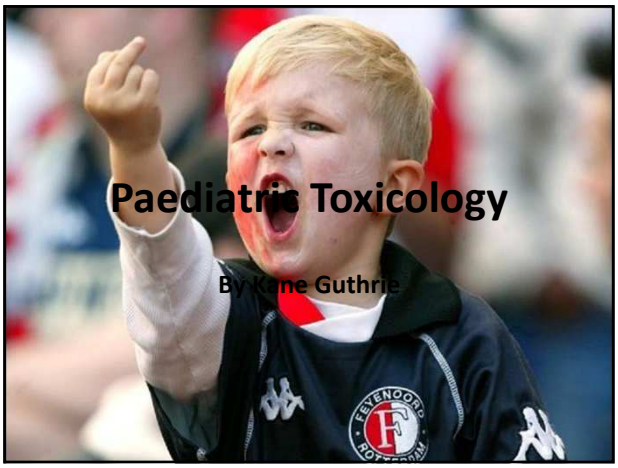


Paediatric Toxicology

By Kane Guthrie

Learning Points

- The approach
- Pearls & Pitfalls
- Common Ingestions
- Case Study

Poisoning in Children

- Unintentional paediatric exposures
  - Generate 80 000 calls/year PIC
- Many are brought to ED
- Unintentional generally under 6years
  - Majority unintentional 12-36months
- Intentional over 6 years

Pharmacokinetic/Toxicokinetic

Difference's compared adults:

- Different body composition
  - Affects volume of distribution
- Higher metabolic rate
- Immature liver enzymes
- Same mg/kg toxic effects for most agents
- Actual agent is most important factor

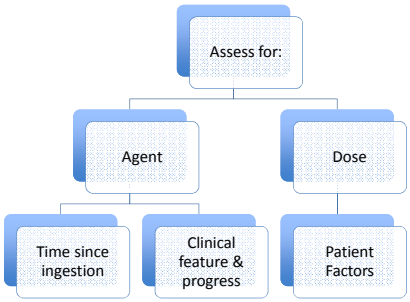
Same Approach

- Resuscitation
- Risk assessment
- Supportive care & monitoring
- Investigations
- Decontamination
- Enhanced elimination
- Antidotes
- Dispositions

Resuscitation

- Same as adult:
  - Airway
  - Breathing
  - Circulation
  - Disability
    - Detect & correct hypoglycaemia
    - Detect & correct seizures
    - Detect & correct hyperthermia
  - Emergency antidote administration

Risk Assessment



Risk Assessment

- Same as adult but more difficult
  - Obtaining accurate history
    - Dose & agent
  - Different range of agents ingested
  - More likely to be non-pharmaceutical

Agents involved in Paediatric Exposures

Pharmaceuticals	40%
Household cleaning products	14%
Plants	13%
Cosmetics	10%
Pesticides	6%

1 Pill can kill 10KG Toddler

•Amphetamines
•Calcium Channel Blockers
•Chloroquine
•Opioids
•Propanolol
•Sulfonylureas
•Theophyline
•Tricyclic Antidepressants

Non-pharmaceuticals that can kill

•Organophosphate /carbamate insecticides
•Paraquat
•Hydrocarbons
•Camphor
•Naphthalene (mothball)

Base Risk Ax - Worse Case Scenario

- Time of ingestion is assumed to be the latest possible time
- Assume all missing/unaccounted for agents have been ingested
- Don't account for spillage

- More than 1 child involved
  - Assume both have ingest all missing agents

Supportive Care

- Majority want need hospital admission
  - Just parent reassurance
- Ensure the facility has resource to cope
- IV accessed deferred till evidence of toxicity
- Use risk assessment to monitor for clinical features

Monitoring

Keep close eye on:

- Level of consciousness
- HR, BP & RR
- Early signs hypoglycaemia
  - (BSL O/A & D/C)
- Institute cardiac monitoring if any abnormalities detected!

Investigations

- Limited utility of test in unintentional OD

The Basics:

- HR, BP, RR
- Temp
- BSL

- Early measurements -may prevent prolong observation in:
  - Paracetamol, Digoxin, theophylinne

Decontamination

- Reserved for severe/life threatening poisoning
  - When antidotes/supportive care want give good outcome!
  - Risk benefit -ratio

- Giving charcoal
  - Mix in ice cream
  - NGT- make sure happy with placement!

Enhanced Elimination

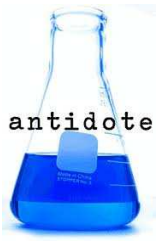
- Risk-benefit analysis is rarely in favour in paediatric exposures
- Extreme cases with clinical toxicologist advice!

Antidotes

- Dose of antidotes were indicated
  - Same for adults on a mg/kg basis

Antivenom's:

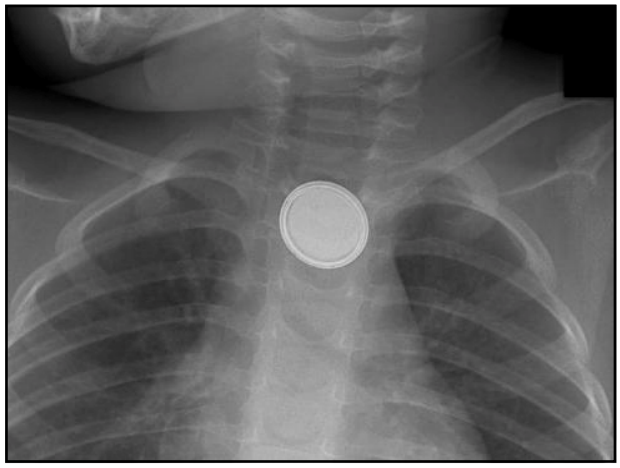
- Doses same as for adults

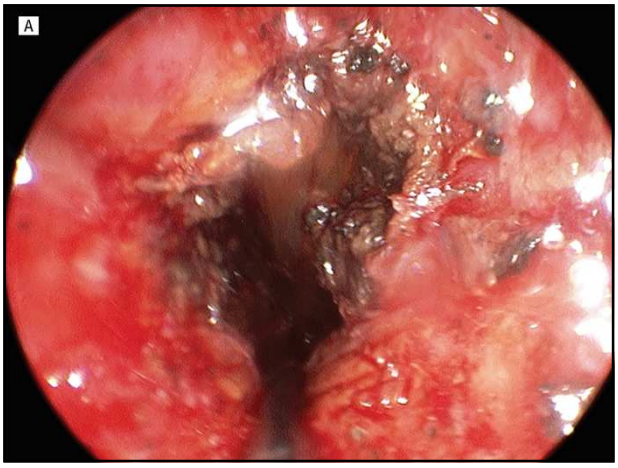


Disposition

- Avoid discharging at night
- If DSP – psych review
- Look out for NAI
- Parental education

Little Johnny!





Button Battery Ingestion

- Ingested battery >15mm diameter
  - May lodge in oesophagus

Causing:
- Mucosal burns
- Strictures
- Oesophageal perforation
- Haemorrhage

Injury Results From

- Leakage of alkali
- Local electrical current discharge
- Direct pressure necrosis

Clinical Features

- Asymptomatic initially

Most frequent Sx are:
- Dysphagia
- Pain

Delayed:
- Fever, resp distress, cough

Management

- Xray Chest-Abdomen
- Endoscopic removal within 6 hours
- If passed past pylorus = D/C
- Resuscitate as required

Don't Mistake

Take Home Points

- Majority is benign
- Getting history can be difficult
- Always based on worst case scenario
- Management principles largely the same as adults

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