Toxicology

(Workshop!)

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Areas to Cover

- ABCDE of Toxicology
- How to access Poisons Information
- Recognising Poisoning (cases)

Part 1

Before the ABC….

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- Be aware if there is any risk of secondary contamination!

- Airway
- Breathing
- Circulation
- Decontamination
- Enhance Elimination
- Antidotes

Airway

- Standard airway manouvres
- Jaw thrust / Head tilt / Chin lift
- OP airway (beware vomiting)
- Invasive airway intervention

Breathing

- Rate and pattern
- Hypoventilation
- Hyperventilation
- Oxygenation / Supplemental oxygen

Circulation

- Pulse
- Blood pressure
- Cardiac rhythm
- Peripheral circulation
- Use of fluids / vasopressors

Decontamination

- Charcoal
- Emesis
- Gastric washout / lavage
- Whole bowel irrigation

Enhance Elimination

- Urine volume
- Urine pH
- MDAC (Multi Dose Activated Charcoal)
- Haemodialysis / Haemoperfusion

Antidotes

- Useful
- Dangers

Part 2

- How to access up to date and usable toxicology information

New Zealand National Poisons Information Centre

- Website
- Telephone advice

Part 3

- Some cases – relevant to General Practice!

Case 1

- Mum rushes into your Surgery in a blind panic
- Her three year old child has managed to open the panadol bottle and drink half of it
- Is she going to die!!!

Responses

- A – Call an ambulance
- B – Send them home, kid will be fine
- C – Phone the NPC
- D – Start looking for the bottle of Ipecac
- E - Other

- Calm down, settle everything down and get a good history
- What are the important bits of information we need?

- (1) How long ago did the child OD?

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- (2) How much panadol did the child take (estimate a worst case)
- (3) How much does the child weigh?
- (4) Does the child have any significant medical history?

Answers

- (1) The child swallowed the panadol 45 minutes ago

Answers

- (2) It was a 200ml bottle of 120mg/5ml. There is 80mls remaining in the bottle and Mum remembers giving at least four 5ml doses to another child last week when he had a sore finger

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- This means the maximum dose was 100mls or 2,400mg

- (3) The Child weighs 16.8kg

- (4) The child had Chickenpox last year, Bronchiolitis at six months old and gastroenteritis last Christmas
- There are no chronic illnesses / disease processes

Does the child need any treatment?

- The dose taken is 2,400mg
- The child weighs 16.8kg
- The Dose per unit body weight is….?

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- 142.8mg / kg

Where to now?

- A - Home, kid will be fine
- B – Urgent ambulance to hospital
- C – Go to hospital via private car (30mins)
- D – Give Ipecac and / or charcoal now
- E – Go to the NPC website or phone the NPC

Case 2

- 78 year old female Rest Home Resident
- Unwell this week – vaguely unwell
- Anorexic for the last couple of weeks, now feeling quite nauseas and has vomited a couple of times
- Weakness and fatigue with lethargy

Past Medical History

- Angina
- Hypertension
- Atrial Fibrillation
- Previous # NOF (3 months ago)
- Osteoporosis and Osteoarthritis
- Catarcts
- Renal impairment

Current Medications

- Aspirin 100mg
- Omeprazole 20mg
- Warfarin 3mg
- Nifedipine 30mg
- Digoxin 250mcg
- Calci-Tab 600 (1.5g)
- Coloxyl with Senna
- Multivit
- Salbutamol inh PRN
- Paracetamol 1g bd
- Ibuprofen 400mg PRN

Clinical Exam

- Frail elderly lady
- ?Mild dehydration
- P 104 irreg
- BP 137 / 72
- HS dual, chest clear
- Abdo soft and a little sunken (no acute surgical abdomen)

- Nursing staff report that the patient has just been gradually deteriorating over the last few weeks. She had a rather vague illness some weeks ago, possibly a LRTI and had a 10 day course of antibiotics at that time.

What is going on?

- Na 134
- K 3.4
- Ur 12
- Cr 114

- Mg 0.8

- Hb 106
- Plt 223
- WCC 5.6

- CRP 12

- Digoxin Level 2.6 nmol/L (0.6 - 2.3)

(Chronic) Digoxin Toxicity

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Why?

- Reduced renal function (Reduced elimination)

- Reduced renal function
- Reduced muscle mass (Reduced volume of distribution)

- Reduced renal function
- Reduced muscle mass
- Drug interaction (CCB’s)

Treatment

- ABCDE (?)

Treatment?

- Stop Digoxin

Treatment?

- Stop Digoxin
- Admit to hospital (?)
- Supportive care (fluids etc)
- Digibind (?)

Case 3

- A 16 year old girl is brought in by her Mother
- She has had 2-3 hours of vomiting, diarrhea and crampy abdominal pains this morning
- This has now settled and she feel a lot better

- Clinical examination is unremarkable for the abdominal exam
- P 92, BP 110 /70, Normal Respiratory rate and pattern
- Urine NAD and PT negative

- You are about to send her home when Mum reveals that she split up with her boyfriend yesterday and took a bottle of her Iron tablets before breakfast.

Ferrograd 325mg (CR)

Possibly 40 tablets

Go to TOXINZ

(Or ring the NPC)

Iron Toxicity

- Can be very toxic / lethal
- Presentation related to dose / formulation and timing

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- Death can occur at any stage!