Paracetamol Poisoning (https://galwayem.ie/index.php/guidelines/medical-emergencies/paracetamol-poisoning)

Category
Medical Emergencies (https://galwayem.ie/index.php/guidelines/medical-emergencies)

Symptoms and signs
Most patients are asymptomatic. Common early features are nausea and vomiting. Loin pain, haematuria and proteinuria after the first 24h strongly suggest incipient renal failure. Features of hepatic necrosis with right subcostal pain and tenderness, recurrence of nausea, vomiting and jaundice may occur after 48 hours.

Management of patients who present within 4 hours of ingestion

- Consider activated charcoal (50 g for an adult, 1g/kg for a child) if patient is alert and presents within 1 hour of having ingested more than 75 mg/kg. In obese patients (>110kg) the toxic dose in mg/kg should be calculated using 110kg as body weight rather then the actual body weight.
- Wait until 4 hours from ingestion and take a venous blood sample for urgent measurement of the plasma paracetamol level. Plasma concentration measured at less than 4 hours cannot be interpreted.
- Assess the risk of severe liver damage from the plasma paracetamol levels/time from ingestion graph on page 103 (paracetamol nomogram)
- If the patient is above the treatment line give intravenous N-acetylcysteine (dosage schedule follows)

Management of patients who present between 4 and 8 hours following ingestion.

- Take blood for urgent measurement of the plasma paracetamol concentration.
- Assess the need for N-acetylcysteine by reference to the graph on page 103.

Management of patients who present between 8 and 24 hours following ingestion.

- Take blood for urgent measurement of the plasma paracetamol concentration.
- Give N-acetylcysteine immediately if it is thought that more than 75 mg/kg body weight has been ingested.
- If levels below the treatment line discontinue N-acetylcysteine.

Management of patients who present more than 24 hours following ingestion.

- Take blood for INR, U&E, LFTs & paracetamol levels
- If ingestion > 75mg/kg start N-acetylcysteine pending results.
- If any blood results are abnormal contact NPIS
- If bloods normal, discontinue N-acetylcysteine
- If unwell or venous bicarbonate low do ABGs

Staggered overdose or uncertain time of ingestion

- These should be started on N-acetylcysteine
- Take blood for INR, U&E, LFTs & paracetamol levels. If these are normal, the patient is asymptomatic and no Paracetamol is detected it may be safe to discontinue N-acetylcysteine. Seek senior advice.

Therapeutic excess

- Unlikely in most patients if ingestion > 150mg/kg over 24 hours
- Start N-acetylcysteine if > 150mg/kg has been ingested within a 24 hour period
- If more than 24 hours since last ingestion, patient is asymptomatic, serum paracetamol is undetectable, ALT normal and INR <1.3 no need for treatment
- In patients who have ingested between 75 and 150mg/kg require N-acetylcysteine if ALT or INR abnormal or paracetamol detected 24 hours after last ingestion.

N-acetylcysteine (NAC) dosing regime based on the Modified 12-regimen (known as the Scottish and Newcastle Acetylcysteine Protocol; SNAP)

This is an off label use of N-acetylcysteine that has been approved by the UHG Drugs and Therapeutics Committee. This regimen is endorsed by NPIS and RCEM.

1. 100mg/kg (max 11g) in 200mls Glucose 5% or Normal Saline over 2 hours.
2. 200mg/kg (max 22g) in 1000mls Glucose 5% or Normal Saline over 10 hours.
3. The above doses must be limited to a maximum weight of 110kg. i.e. if a patient weighs 120kg the dosage regime is calculated using a weight of 110kg

N-acetylcysteine (NAC) adverse reaction and management

Adverse reactions to intravenous NAC occur in up to 15% of patients, usually within the first 30

minutes of administration when large amounts are given rapidly. Nausea, vomiting, flushing, urticarial rash are common. Angioedema, tachycardia, hypotension, bronchospasm, respiratory depression and collapse are rare but may occur. In severe cases, renal failure and disseminated intravascular coagulation (DIC) have been described.

- Stop the infusion.
- Give an antihistamine, Chlorphenamine 10mg IV
- Give nebulised salbutamol if bronchospasm is significant.
- Consider corticosteroids if the reaction is severe.
- Other supportive measures as indicated by the patient's condition.
- Once the reaction has settled, recommence N-acetylcysteine infusion at a reduced infusion rate of 50 mg/kg over 4 hours. Further reactions are almost unknown

Image
(https://galwayem.ie/sites/default/files/images/paracetamol_0.png)
