Paraquat

Paraquat is a restricted herbicide. A mouthful is potentially lethal. Immediate decontamination, early dialysis, and avoidance of O_2 are the mainstays of treatment

Toxicity / Risk Assessment

Deliberate self-poisoning is invariably fatal.

Accidental ingestion of any amount may be fatal (< a mouthful)

< 20 mg/kg = mild/moderate GI effects

20-50 mg/kg = significant toxicity

> 50 mg/kg = fulminant multi-organ failure AND death

(>15 mL of 25% solution in 70 kg individual = lethal)

Dermal: exposure to normal skin + prompt decontamination does not cause systemic toxicity. Prolonged dermal exposure or exposure to broken skin may lead to systemic toxicity.

Inhalational/ocular exposures may cause local injury

Acute clinical features:

- Vomiting, corrosive injury (mouth, tongue, GI) occurs early
- Cardiovascular collapse, progressive acidosis, renal and respiratory failure with pulmonary fibrosis and death

Mortality Likelihood (%) - Vomiting or oral burns ≈ 50%

- Dithionite Urine Test (DUT): Negative < 5%, Positive ≈ 66%
- DUT positive AND Creatinine >230 µmol/L ≈ 95%
- DUT positive AND Creatinine rise >115 µmol/L in 24hrs ≈95%
- Generalized peripheral burning sensation at 24 hours ≈ 75%

Management - *Discuss ALL exposures early with a Clinical Toxicologist*

TIME CRITICAL EMERGENCY

Decontamination takes priority over resuscitation / hospital transfer

- Immediate food +/- 50 g activated charcoal +/- soil mixed with water as a slurry
- Dermal exposures should be decontaminated immediately with soap and water

Do not administer oxygen unless SpO2 < 90%

Haemodialysis is time dependent: may be beneficial up to 24 hours post exposure

- Haemodialysis is most likely to be beneficial within first 4 hours

There may be benefit from additional therapies (Please discuss with Clinical Toxicologist)

N-acetylcysteine - Dose as per paracetamol guidelines followed by infusion 150 mg/kg/24 hours for two weeks

Methylprednisolone - 1 g IV daily for three days

FOLLOWED BY

Dexamethasone - 8 mg IV/PO TDS for at least two weeks

Disposition

- Patients who are clinically well without oral burns and two negative dithionite urine tests 6 hours apart are unlikely to have experienced a significant exposure (discuss with a Clinical Toxicologist)
- Patients who have ingested > 50 mg/kg with early multi-organ failure should be considered for palliative care