How to treat kerosene (paraffin) poisoning

This is a common problem among young children. In a study reported in this journal (1) it accounted for over half of the children with all forms of poisoning admitted to 20 health units in Uganda. This problem usually seems to arise from kerosene being kept in an unlabelled container (e.g. a cola bottle) and within reach of the child.

Kerosene is poorly absorbed by the gastrointestinal tract but there is often aspiration into the respiratory tract especially if the child vomits. This causes pneumonitis which may be so severe as to cause pulmonary oedema and hypoxaemia. Such features usually occur within hours but may be seen a day or so after ingestion when the child becomes breathless and feverish up to 40°C. The signs of pneumonitis also include cough, tachypnoea and tachycardia, cyanosis, pulmonary crepitations and rhonchi. However a chest X-ray often shows pulmonary changes (non-segmental consolidation or collapse, especially on the right side and lower lobes) even without pulmonary physical signs (2).

The incidence of central nervous system complications is variable but may occur in at least a quarter of cases. These most commonly include lethargy and much less often semi-coma, coma and convulsions (2).

Bone marrow toxicity and haemolysis are not common but the clinician must be aware of the possibility of heart rhythm problems (such as atrial fibrillation and ventricular fibrillation) and hepatic and renal failure. Contact with the skin and mucous membranes may cause variable degrees of irritation up to the formation of bullae.

From the Ugandan data total mortality appears to be low although reports are more common in those under 5-years-old. Among the 506 cases reported by Cachia and Fenech (2) there was one death.

Treatment

1. Immediately remove the child from the source of the poisoning and ensure the airway is open (this is always the first priority).
2. Remove contaminated clothing and thoroughly wash the skin with soap and water.
3. If possible perform pulse oximetry and give supplemental oxygen if indicated. Intubation and mechanical ventilation may be needed in a patient with severe hypoxia, respiratory distress or decreased consciousness.
4. Avoid gastric lavage because of the risk of inhalation and hence pneumonitis. If very large amounts of kerosene have been ingested less than an hour earlier then lavage may be considered if the airway can be protected by expert intubation.

There is no evidence that corticosteroids are helpful. Some texts recommend the routine use of antibiotics (3) but this remains controversial.

References

1. Tibbutt, D. 2011. Is poisoning a problem in South Sudan? *South Sudan Medical Journal* 4: (4)
2. Cachia, E. A. 1964. Kerosene poisoning in children. *Archives of Diseases of Childhood.* 39: 502 – 504.
3. Godfrey, R. 2004. Common life-threatening emergencies in "Principles of Medicine in Africa" p.1359. Ed. Parry, E. et al., Publ. Cambridge University Press.

Compiled by David Tibbutt david@tibbutt.co.uk