ED QUICK QUIZ

WHAT IS THE DIAGNOSIS?

BACKGROUND

A 2-year-old boy is brought to the Emergency Department after ingesting an unknown number of his mother's prenatal tablets several hours before this presentation.

His parents report that the child has been vomiting bright-red blood and has had 1 episode of bloody diarrhoea.

He is otherwise fit and healthy.

Examination shows the child to be lethargic and irritable.

His temperature is 37.5°C, heart rate of 150, respiratory rate of 24, and blood pressure of 88/55 mm Hg.

Cardiorespiratory findings are otherwise unremarkable.

On abdominal examination, he has diffuse, mild tenderness to palpation.

He is moving all of his extremities.

QUESTIONS

1. What diagnosis must be considered?
2. Why is he having GI bleeding?
3. What investigations should be undertaken?
4. Should treatment be started the results are obtained?

   If so then what with?

ANSWERS & DISCUSSION

1. **Iron poisoning** is the key consideration. Ingestion of 20 mg/kg **elemental iron** is potentially toxic and 200-250 mg/kg **elemental iron** is potentially fatal. Nausea, vomiting, abdominal pain and diarrhoea are common features within 6 hours after ingestion. The vomit and stools may be grey or black.
2. The exact mechanism of toxicity is not well understood. Iron exerts a direct corrosive effect on the gastrointestinal tract. At high plasma concentrations it has cytotoxic actions, particularly on the liver.
3. Take blood for urgent measurement of the **serum iron** concentration. Peak serum concentrations in overdose are reached 4 to 6 hours following ingestion. Iron may itself cause haemolysis at high concentrations so a haemolysed sample should be an index for concern.
4. **Do not wait** for results before administering chelation therapy. Features of severe poisoning at any time are indications for urgent treatment with **desferrioxamine** 15 mg/kg body weight/hour.

    * reduced level of consciousness
    * metabolic acidosis
    * GI bleeding
    * haemolysis
    * shock
    * hypotension
    * convulsions
    * positive anion gap

    Coma and shock are the most common causes of early death from iron toxicity.

    Features of hepatocellular necrosis and renal failure may appear after 12 hours.

OTHER POINTS

- If **metabolic acidosis** persists despite correction of hypoxia and adequate fluid resuscitation consider correction with intravenous sodium bicarbonate.
- Consider **whole bowel irrigation** if the patient is haemodynamically stable, providing the airway can be protected.
- **Haemodialysis** does not remove iron effectively but should be considered on a supportive basis for acute renal failure as this will facilitate removal of the iron-desferrioxamine complex.
- Observe for evidence of **gut perforation** or infarction from the corrosive effects.

Treat **convulsions** as per standard guidelines.