CASE DESCRIPTION

- 23-month-old boy presented to ED with vomiting & altered mentation, following ingestion of an unknown amount of 325 mg ferrous sulfate tablets.
- Initial bloodwork
  - Serum iron 23,300 = µg/dL ~ 6.5 hours post-ingestion
  - Anemia, thrombocytopenia, & coagulopathy
  - High anion gap metabolic acidosis
  - Clinical deterioration → lethargy, tachycardia, & poor perfusion
  - Tracheal intubation for airway protection
  - Initiation of vasoactive infusions for worsening hemodynamics
  - Blood transfusions for coagulopathy & active hemorrhage
- Iron toxicity management
  - Deferoxamine infusion titrated as tolerated by blood pressure
  - CVVHD initiated to expedite iron removal
- Despite massive transfusion administration, he was unable to be stabilized & maintained on ECMO support
- Blood transfusions for coagulopathy & active hemorrhage
- Tracheal intubation for airway protection
- Iron overload management
  - Intravenous deferoxamine is the antidote for serious iron toxicity
  - Serum iron concentration
  - Our patient’s case is unique, given the exceptionally high serum iron concentration
  - Upon literature review, there have not been previously reported serum iron concentrations approaching that of our patient’s
  - Intravenous deferoxamine is the antidote for severe iron toxicity
  - Chelating agent forming water-soluble ferrioxamine for renal excretion
  - Hypotension secondary to histamine release may occur
  - In this case, the deferoxamine infusion dose was limited due to refractory shock & cardiovascular collapse
- Despite aggressive therapies & resuscitation, this patient could not be stabilized even on extracorporeal support

PREVENTION AND ADVOCACY

- 1997: The FDA mandates display warnings, blister packaging, & restrictions on container quantity
- 2003: FDA mandate legally overturned.
- Prenatal vitamins in the home have been recognized as a significant risk factor
- Pediatricians must advocate for patient/family education regarding poisonings associated with prenatal vitamins, especially toddlers who have infant-age siblings.

REFERENCES

- Dr. Matthew Smith, M.D., Stephen N. Epps, M.D., Matthew Malone, M.D., Thomas Fiedorek, M.D., Erica Liebelt, M.D., Brenda Crawford, M.D., Ronald Sanders, M.S., M.D., Sanjiv Pasala, M.D.
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DISCUSSION

- We propose early initiation of ECMO for life-threatening iron ingestions
- Allows for more aggressive deferoxamine titration
- Earlier hemodilution in the clinical course
- The risks of worsening coagulopathy must be weighed with bleeding complications
- Extracorporeal methods of iron removal are only capable of eliminating free-circulating iron, so these methods are not useful once intracellular iron transport has occurred
- Extracorporeal support may be useful in managing severe iron toxicity in patients on ECMO with stable hemodynamics
- It is imperative that these procedures are initiated early following the ingestion, before refractory shock ensues
- Literature is lacking in iron toxicity reports & management experience
- More importantly, it is crucial to advocate for preventative measures

CONCLUSION

- There is a paucity of literature to support management of severe iron toxicity, efficacy of exchange transfusion, or renal replacement therapy
- Our patient’s case is unique, given the exceptionally high serum iron concentration
- Upon literature review, there have not been previously reported serum iron concentrations approaching that of our patient’s
- Intravenous deferoxamine is the antidote for severe iron toxicity
- Chelating agent forming water-soluble ferrioxamine for renal excretion
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DISCLOSURES

- Dr. Matthew Smith, M.D., Stephen N. Epps, M.D., Matthew Malone, M.D., Thomas Fiedorek, M.D., Erica Liebelt, M.D., Brenda Crawford, M.D., Ronald Sanders, M.S., M.D., Sanjiv Pasala, M.D.
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