A 2-year-old presents following methanol ingestion with serum creatinine of 8.6 mg/dl: Questions

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Case summary

A 2-year-old was transferred to our hospital for further evaluation of a serum creatinine of 8.6 g/dl following presentation to an outside hospital for methanol ingestion. The father stated that he found the patient holding a bottle of model racing fuel that contains 20 % methanol. The patient's father estimated that 30–40 ml of racing fuel was missing from the bottle. The child was immediately brought to the local emergency room. His past medical history was unremarkable except for a previous hospital admission for opioid ingestion at 18 months of age. Physical examination revealed a weight of 13.7 kg (50–75th percentile), a height of 86.5 cm (10–25th percentile), a pulse of 118 beats/min, and a blood pressure of 106/64 mmHg. Physical examination including mental status was otherwise unremarkable. Laboratory tests at the outside emergency room ~ 60 min after ingestion revealed a normal complete blood count. Other laboratory findings included a serum sodium of 137 mg/dl, a serum potassium of 4.2 mg/dl, a serum chloride of 105 mg/dl, a serum bicarbonate of 24 mg/dl, a blood urea nitrogen of 10 mg/dl, a serum creatinine of 8.6 mg/dl, and a

serum osmolality of 290 mOsm/L. Because of the serum creatinine, poison control recommended transfer to our facility for further management of methanol toxicity. Following transfer, laboratory studies were repeated immediately upon the patient's arrival, which was approximately 4 h after the ingestion, revealing a serum sodium of 139 mg/dl, serum potassium of 4.4 mg/dl, a serum chloride of 108 mg/dl, a serum bicarbonate of 20 mg/dl, a blood urea nitrogen of 8 mg/dl, and a serum creatinine of 5.8 mg/dl. Venous blood gas revealed pH 7.33, pCO₂ 50, pO₂ <30, HCO₃ 20. Toxicology results from the transferring facility were available 9 h after his initial presentation and revealed a methanol level of 17 mg/dl. Serum acetone, ethanol, and isopropanol levels were undetectable.

Conflict of interest None.

Questions

1. What is the most likely explanation for elevation in the patient's serum creatinine?
2. What was the clue that raised suspicion for the diagnosis?

The answer to this question can be found at <http://dx.doi.org/10.1007/s00467-014-2934-0>.

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