Acute Hyponatraemia in Labour secondary to water intoxication: A case report

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Case Report

A normally fit and well 26 year old caucasian primiparous female was transferred to a tertiary hospital delivery suite from a primary birthing unit for a prolonged first stage of labour at 41/40 gestation. Prior to admission she had consumed large quantities of sports drinks and water due to the belief that this would shorten the duration of labour and promote uterine activity. Shortly prior to her admission she became lethargic and uncommunicative. This was initially attributed to fatigue from a prolonged first stage of labour. A syntocinon infusion in normal saline was administered for two hours. Following this, the obstetric team requested regional anaesthesia for instrumental delivery due to failure to progress in second stage. Inability to communicate with the patient prompted investigation of the cause of her mutism and lethargy. Her serum sodium returned as 120mmol/l and dilutional hyponatraemia secondary to water intoxication was diagnosed. Ultimately the patient’s inability to consent for and to co-operate with both regional anaesthesia and assisted vaginal delivery prompted emergency delivery by caesarian section under general anaesthesia. The hyponatraemia was corrected, without the feared complication of central pontine myelinolysis, using hypertonic saline and fluid restriction. Interestingly the neonate was also found to be hyponatraemic and required a period of continuous positive airway pressure (CPAP) ventilation and oral sodium supplementation in the newborn unit.

Case Discussion

The underlying etiology contributing to hyponatraemia here is primary polydipsia as the urine osmolality is less than 100, suggesting appropriate suppression of ADH (antidiuretic hormone). There have been several reports where water intoxication has led to significant maternal hyponatraemia with the risk of altered behaviour and seizures.1-3 This phenomenon has also been described in endurance athletes.4 It is worth noting that oxytocin, which is structurally similar to ADH, also has an effect on water reabsorption in the kidney. Both natural and synthetic oxytocin can thus contribute to hyponatraemia. This is less likely however if synthetic oxytocin is dissolved in 0.9% NaCl rather than 5% Dextrose as has been the case historically. When there is significant maternal hyponatraemia, clinicians should anticipate the neonate may also be affected, with subsequent risk of seizures. 1,5

Investigation results

- Plasma Na: 120 mmol/L
- Plasma K : 3.5mmol/L
- Plasma osmolality : 267
- Urine Na: 10 mmol/L
- Urine Osmolality :84
- Normal TFTS, and cortisol
- BSL: 7.0 mmol/L

Key Learning Points

- Peculiar behaviour and lack of communication should not be attributed to pain and fatigue alone in cases of prolonged labour. The differential of electrolyte disturbance should be explored.
- Guidelines should be initiated for monitoring fluid balance in normal low risk women under primary care.

References