Severe hypernatraemia in a child with autism spectrum disorder

Introduction

Hypernatraemia in children is a rare electrolyte abnormality and can be the result of food and fluid selectivity, especially in children with autism spectrum disorder. This report describes a case of a young child with autism spectrum disorder who presented with severe hypernatraemia, and whose family had learning disabilities. Fluid resuscitation was successful.

To optimize medical care maladaptive behaviours arising from challenging environments should be addressed, considering the impact of an unfamiliar environment on the child's behaviour, to prevent a medical condition from worsening unintentionally. It is imperative that health and social care teams work together to provide education and differentiated care for parents with learning disabilities to avoid cases like these.

Discussion

This case is unusual as it highlights the importance of a patient-centred approach when dealing with a child suffering from hypernatraemia, who has autism spectrum disorder and whose family has learning disabilities.

Managing children with autism spectrum disorder requires an understanding that the child can be socially withdrawn with communication barriers. Food selectivity is common (Bandini et al, 2010), and in this case the patient had a strong attachment to his bottle. To optimize medical care, maladaptations arising from challenging environments should be addressed to prevent a medical condition from worsening (Myers et al, 2007). Speech and language therapy using a picture exchange communication system had previously improved the patient's ability with daily activities. Whether a picture exchange communication system could have been used on admission is questionable as the patient's mental state was affected by the metabolic abnormalities.

The range of needs for a child with autism spectrum disorder is difficult for any parent to address (Gurney et al, 2006); parents with learning disabilities may find providing extensive care more difficult. The patient's family was mostly non-verbal and silent unless prompted, making it difficult to establish how much they enabled his language progression, and how well he could communicate at home.

Miss Grace Pike, Medical Student, St George's, University of London, London

Miss Elena E-J Lee, Medical Student, St George's, University of London, London

Dr Shahinul Khan, Paediatric Consultant, Children's Resource Centre, Darent Valley Hospital, Dartford and Gravesham NHS Trust, Dartford DA2 8DA

Correspondence to: Dr S Khan (shahinul.khan@nhs.net)

CASE REPORT

A 4-year-old boy with autism spectrum disorder presented to the emergency department at a district general hospital with 22–25% weight loss and signs of dehydration, accompanied by his mother and grandmother. He was unkempt, appeared undernourished and had poor dental hygiene.

Obtaining a detailed history of the patient's presenting complaint was difficult, as the mother and maternal family, who eventually arrived, were mostly uncommunicative and had learning disabilities. The child and his mother were previously known to social care services, who had closed their case because they judged that his needs were fulfilled by his being in the family home. Nevertheless, throughout this admission, concerns were expressed over possible neglect because the family did not have the capacity to tend to his needs relating to his autism spectrum disorder. Thus a best interests meeting was held and the safeguarding team and social care services were involved regularly throughout the admission.

The patient had weighed 19 kg 4 months before admission, tracking along the 75th centile. He had been diagnosed with autism spectrum disorder at 2 years of age with limited verbal communication and verbal developmental delay. He used single words and would not normally follow commands. There was no further medical history. He did not display aggressive tendencies, and there were no concerns about his gross motor development, vision or hearing.

Two days before presenting to the emergency department he had presented to the GP with a sore throat and low grade fever. Tonsillitis was diagnosed and oral amoxicillin was prescribed. On presentation to the emergency department, it was reported that there had been no oral intake, diarrhoea or vomiting. It was unclear whether he had had any wet nappies. He had been lethargic and non-verbal for 2 days.

Initial fluid resuscitation occurred under a working diagnosis of acute kidney injury secondary to dehydration, and intravenous antibiotics were administered. Subsequently, the patient was transferred to the paediatric ward where the hypernatraemia dehydration protocol was implemented and close monitoring of fluid input and output occurred alongside a feeding plan. Before treatment, he had severe hypernatraemia, hyperglycaemia and metabolic acidosis. Four-hourly electrolytes were analysed, along with cardiac and neurological monitoring. Maintenance intravenous fluids were stopped and a nasogastric tube passed to minimize the risk of refeeding syndrome. The child's electrolyte and metabolic abnormalities resolved over 4 days.

Addressing the nutritional deficit was more challenging. The patient refused oral feeding of dry foods until day 3, and continued to refuse oral fluids. Nutritional support was adjusted to encourage increased oral feeding and drinking, but was unsuccessful. On day 17, a percutaneous endoscopic gastrostomy for fluids was considered for use on discharge as he continually refused to drink. Later that day, his mother found his old baby bottle, and the patient began to drink fluids voluntarily. At discharge, the nasogastric tube was removed and a long-term plan for nutritional needs was made. It was felt essential for his mother to receive parenting education, and they were discharged to a mother and baby unit.

His lack of communication and sudden lack of nutritional intake at home contributed to his hypernatraemia. Parents with learning disabilities can put a child at risk of neglect from acts of omission (NSPCC, 2014); however, their rights must be considered, alongside sufficient support and time when considering child protection proceedings (National Institute for Health and Care Excellence, 2017).

If, on initial presentation to the GP, liaison with the local authority and social care services had been implemented, the patient could have been flagged as a potential 'child in need' before his condition worsened (National Institute for Health and Care Excellence, 2017). Although social care services were involved before and during the admission, it was not established whether his mother was assessed and supported sufficiently to avoid this admission. **BJHM**

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LEARNING POINTS

- Children with autism spectrum disorder may struggle in unfamiliar clinical environments, so early education and support should be provided.
- Health-care staff should be trained in using a picture exchange communication system when working with children with limited verbal communication.
- Patients with autism spectrum disorder particularly require cohesiveness and communication among health and social care teams.
- To provide sufficient support and education from clinicians and social care services, the parenting capacity of parents with learning disabilities should be assessed.
- Clinicians need a differentiated approach according to the needs of families with or without learning disabilities.

Subconjunctival emphysema: an unusual complication of a kinked intercostal chest drain

A 53-year-old man underwent sternal re-wiring for mechanical sternal dehiscence 1 year after coronary artery bypass surgery. A large bore intercostal chest drain was inserted for a postoperative right pneumothorax. Extensive surgical emphysema involving the anterior chest wall, neck, face and conjunctiva (*Figure 1*) subsequently developed with kinking of the chest drain (*Figure 2*). The subconjunctival emphysema resolved over several days with conservative management, without compromise of visual acuity or eye movements.

Subconjunctival emphysema is commonly seen with medial orbital wall fractures resulting in sino-orbital communication (Yuksel et al, 2007). In the present case with a kinked intercostal drain, tensioned air in the pleural space must have preferentially escaped through the pleural puncture site and extended subcutaneously into the subconjunctival plane. While the condition is generally self-limiting, care must be taken to avoid exposure keratopathy arising from the inability to close the eyelids in severe cases (Ababneh, 2013). **BJHM**

Mr Metesh N Acharya, Clinical Fellow in Cardiothoracic Surgery, Department of Cardiothoracic Surgery, Harefield Hospital, London UB9 6JH

Dr Paul Douglass, Clinical Fellow in Intensive Care Medicine, Department of Intensive Care Medicine, Harefield Hospital, London

Correspondence to: Mr MN Acharya (Metesh.Acharya@doctors.org.uk)

Figure 1. Subconjunctival emphysema (arrow) affecting the right eye.

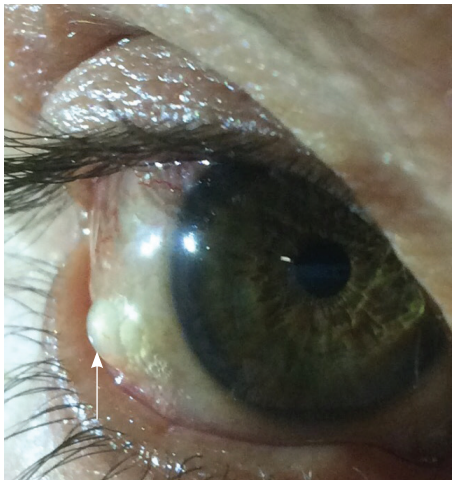

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Figure 2. Chest radiograph demonstrating surgical emphysema and a kinked intercostal chest drain (arrow).