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Breast-feeding and hypernatremia

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ABSTRACT

The importance of exclusive breast-feeding is far known but there have been babies presenting with complications despite of being exclusively breast fed. The problem of hypernatremia is one of them. We are presenting 2 case reports in our hospital in Kolhapur to know more about the association of breast feeding with hypernatremia and found that its actually the improper technique of breast feeding which is the culprit usually and that such complications are manageable by proper care.

Breast-feeding and hypernatremia

Severe neonatal hypernatraemia is commonly associated with poor outcomes and several morbidities.(1,2) Inadequate breast-feeding is an important, yet often overlooked, cause of severe hypernatraemia in a neonate. We report 2 such cases in our hospital recovering without any neurological sequelae.

A 19-day-old exclusively breastfed female child presented with loss of weight since birth. Born at term through a normal delivery, she had normal anthropometric parameters. She was wasted and irritable, and weighed 1.5 kg (45.5% weight loss since birth), with no signs of dehydration. Investigations revealed: serum sodium: 175 mEq/L; serum potassium: 5.8 mEq/L; urea:161 mg/dL; creatinine: 1.2 mg/dL; venous blood: mild metabolic acidosis; urine osmolality: 155 mosm/L; serum osmolality: 450 mosm/L: and mother's breast milk sodium: 17 m Eq/L. The child was kept nil per oral for 48 hours and appropriate intravenous (IV) fluids were administered aiming at a slow correction of hypernatraemia. Serum electrolytes and renal function normalised after 48 hours and 96 hours respectively. Breastfeeding was restarted on the third day and she gained 500 grams of weight over a period of 7 days. At 1, 4 and 12 weeks after discharge, her serum electrolytes, serum and urine osmolality and anthropometric measurements were normal, with age appropriate milestones. The neurological development at 18 months was also normal.

The second case was a 9-day-old male child with complaints of excessive irritability since birth. Born at term through caesarian delivery, his weight on admission was 2.3 kg (loss of 1000 g since birth). His eyes were sunken, oral mucosa dry, and skin pinch slow. The child had tachypnea, tachycardia and was irritable. On investigations, venous blood gas examination showed metabolic acidosis and increased lactate (pH7.17, lactate 11.6, HCO3 10.6, based excess 17.2); serum sodium was 203 mEq/L; urea: 249 mg/dL; and creatinine: 4.5 mg/dL. His urine output was low (0.6 mL/kg/hour). Peritoneal dialysis was started, following which the child had generalised seizures, managed by intravenous phenobarbitone. Magnetic resonance imaging (MRI) showed ischaemic changes in the right inferior temporal lobe and haemorrhagic lesions in the frontoparietal lobe. Dialysis was stopped in 36 hours and all parameters including urine output normalised on day 4. The breast milk sodium was 25 mEq/L. The child was discharged on day 7, and was last examined at 2 years of age, with normal anthropometric parameters, neurological examination and milestones.

Both the babies were exclusively breastfed but the milk output was found to be insufficient. On further assessment, their attachment to the breast and positioning while feeding were incorrect with short feeding sessions. The mothers, both primiparous, had not received breastfeeding counselling in both the pre- or postnatal period, though they knew that the babies had to be breastfed exclusively for the first 6 months. The second baby was born by caesarean section and the mother had difficulty in sitting and holding the baby in the correct position during feeding. When the mothers were educated regarding the correct position and attachment of the baby, the optimum duration and frequency of breastfeeding, there was an increase in the breast milk output resulting in resolution of symptoms (irritability) and weight gain.

Adequate breast milk output depends to a great extent on effective milk removal, which in turn depends on the correct positioning and latching by the baby to the breast.(3,5) This problem is compounded in primiparous women who are inexperienced and are unable to recognise the signs of inadequate feeding and dehydration in their babies.(3,4)

Amongst the causes of hypernatraemic dehydration, intake of breast milk containing high levels of sodium is uncommon. Rather, it is inadequate breastfeeding in an exclusively breastfed infant that is a more common cause.(3) Indeed, high breast milk sodium level is more often the effect of poor suckling rather than being a cause for hypernatraemia in the neonate.(3) Both our patients were born to primigravida mothers with inadequate breast milk output.(3,4)

Our cases highlight 2 important points. One, there is a need to educate mothers, especially first-time mothers, about ensuring the adequacy of breastfeeding at the time of hospital discharge as the neonatal follow-up and health-seeking behaviour of parents in our setup is not as good as those in the developed countries. In a busy tertiary care hospital like ours, routine counselling regarding feeding and the danger signs in a newborn may be suboptimal. An inadequate antenatal follow-up also adds to this problem. Most of these women who belong to the lower socioeconomic status and class are uneducated (as in our cases). So, there is a need to prepare them about essential newborn care (including skills of positioning and attachment of the newborn during breastfeeding) and to make them aware of the warning signs of dehydration in a newborn.(5) Secondly, our case report also highlights the fact that an early diagnosis and management can ensure complete recovery without any neurological sequelae.

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