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**Hypernatremia in Breastfed Newborns: a Review of 149 Cases**

**Introduction**

Breastfeeding provides health advantages for newborns and mothers. However, inadequate transfer of breast milk may cause hypernatremic dehydration in neonates [1, 2]. It is a potentially devastating condition. Serious complications have been recently reported [3–6]. We aimed to assess the frequency, risk factors, complaints and complications of hypernatremia among hospitalized breastfed term neonates at a neonatal tertiary care centre in the Northeast of Turkey.

**Methods**

After study approval was obtained from the institutional review board, we retrospectively evaluated hospital records of term neonates with hypernatremia (serum sodium levels of ≥150 mEq/l) hospitalized at Turkey Ministry of Health Erzurum Nenehatun Hospital Neonatology Unit, between March 2007–08. Selection criteria included exclusively breastfed term neonates <28 days old. Patients were excluded if hypernatremia was not caused by inadequate breastfeeding. Statistical analysis was performed by SPSS 13 for Windows. *P* < 0.05 were significant.

**Results**

A total of 1034 term infants were hospitalized during the study period. Of these 149 neonates met inclusion criteria. Maternal and infant characteristics are summarized in Table 1. There was positive correlation between weight loss and serum sodium level (*p* = 0.0001, *r* = 0.636) (Fig. 1). Weight loss and age at admission are shown in Figure 2. Thirty-eight neonates had weight loss <10%; their mean weight loss was 7.5 ± 2.2%, mean age at admission was 2.5 ± 1.5days. There were no correlations between weight loss and mothers’ age, education level, delivery route or first-born status (*p* > 0.05).

Major presenting symptoms and complications are shown in Table 2. Significant indirect hyperbilirubinemia was the most common metabolic abnormality [7]. None of the infants required peritoneal dialysis. Seven patients developed seizure within the first 24 h of therapy. Five patients had brain edema on

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Maternal and neonatal characteristics of cases (<em>n</em> = 149)</th>
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<tbody>
<tr>
<td>Characteristics</td>
<td>Age at admission, mean ± SD (range) (days)</td>
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<td></td>
<td>Birth weight, mean ± SD (range) (grams)</td>
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<td>Weight loss, mean ± SD (range) (%)</td>
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<td></td>
<td>Serum sodium level, median (range) (mEq/l)</td>
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<td></td>
<td>Maternal age, mean ± SD (range) (years)</td>
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<td></td>
<td>First-born, (%)</td>
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<td>Vaginal delivery, (%)</td>
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<td>Male gender, (%)</td>
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<td>Mothers’ education level</td>
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<td>Primary school, (%)</td>
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<td>Lyceum, (%)</td>
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<td>High school, (%)</td>
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Fig. 1. Weight loss and serum sodium level of neonates.

Fig. 2. Weight loss and age at admission of neonates.
tomography. Hypernatremia was treated with oral feeds or intravenous fluids depending on severity. None of these neonates died.

**Discussion**

Neonatal hypernatremia is a frequent reason for hospitalization in our newborn unit. A total of 149 cases were identified for one year. In two studies with large series reported in Turkey, the case series were composed of cases identified for 3–6 years in the central cities [8, 9]. Therefore, we consider this situation more prevalent in the northeastern regions of Turkey, which is quite worrisome. In an attempt to establish a reason, no relationship could be posited in our study between hypernatremia and risk factors mentioned in previous studies. However, as birth rates are excessive in this region, it is compulsory to discharge babies without 24 h of hospital care after birth. For this reason, the pressing issue is the education of mothers on signs of successful breastfeeding, and to reevaluate babies regarding weight loss in 48–72 h [10]. Likewise, weight loss in a baby by ≥7% of birth weight in the first days after birth should be regarded as a warning. In conclusion, to protect babies from hypernatremia, which is a preventable situation, more effort should be exerted in the northeastern region of Turkey.

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**References**


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**Can Cormic Index be a Marker of Pubertal Onset and Progress?**

**Introduction**

Adolescence is the period of rapid change in terms of physical and sexual development. Upper segment to lower segment ratio is a well-established tool to measure body proportion changes during the prepubertal period. In this study, we explored the scope of Cormic index (sitting height/height ratio) as a marker of pubertal onset and progress.

**Methods**

This was a cross-sectional observational study comparing the Cormic Indices in boys and girls with their sexual maturation rating (SMR) stages.

We approached 1641 healthy children in the age group of 8–16 years from a boys’ and girls’