EFFECTS OF EARLY SODIUM AND FLUID INTAKES ON SODIUM LEVELS AND WEIGHT CHANGE IN EXTREMELY PRETERM INFANTS

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Background Hypernatremia is common in extremely preterm infants but it is unclear to what extent it is affected by sodium (Na) and fluid intakes. It is assumed that infants normally lose 5–10% of birth weight during the first postnatal days. Aim To explore associations between early intakes of Na and fluid and biochemical levels of Na as well as weight change during early postnatal life.

Method We investigated a population-based cohort of Swedish extremely preterm infants (<27 gestational weeks). Detailed data of Na intakes, biochemical levels of Na and anthropometric measurements were retrospectively obtained from hospital records. Data are expressed as mean±SD.

Results Preliminary analyses of 547 infants (gestational age 25.3 ± 1.1, birth weight 762 ± 170g) showed that highest Na levels occurred at day 3 of life (144.3 ± 6.2mmol/L) and were associated with Na intake during the first 2 days of life (R=+0.25), gestational age (R=–0.23) and birth weight (R=–0.18) (p < 0.001 for all).

Of included infants 32% lost more than 10% of birth weight during the first 3 days. There was a strong correlation between fluid intake within the first two days of life and weight change between birth and day 3 (R=+0.56, p < 0.001). Among those (27%) who lost between 5–10% in weight, fluid intakes were on average 103 mL/kg/day.

Conclusion Early Na levels were significantly correlated with early Na intake, low gestational age as well as low birth weight. In order to avoid hypernatremia and excessive weight loss, fluid and Na intakes during the first 2 days need to be strictly regulated.