Savaş-Erdeve 2011

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Bibliographic Reference	Savaş-Erdeve Ş; Berberoğlu M; Oygar P; Şıklar Z; Kendirli T; Hacıhamdioğlu B; Bilir P; Öçal G; Efficiency of fluid treatments with different sodium concentration in children with type 1 diabetic ketoacidosis.; Journal of clinical research in pediatric endocrinology; 2011; vol. 3 (no. 3)

Study details

Study type	**Retrospective cohort study**
Study location	Turkey
Study setting	Paediatric intensive care unit
Study dates	2002 to 2009
Duration of follow-up	Samples of venous blood for blood gases and electrolytes were taken at admission and at the 4th, 8th, 16th and 24th hours after admission.
Inclusion criteria	Patients younger than 18 years of age who were admitted to the paediatric intensive care unit from 2002 to 2009
Exclusion criteria	Not reported

Study type	**Retrospective cohort study**
Sample size	32
Condition specific characteristics	DKA defined as having a glycemia >200 mg/dL (11.4 mmol/L), a venous pH <7.30 or a plasma bicarbonate level <15 mmol/L, and ketonuria (2).
Interventions	**75 mEq/L Sodium Chloride** Initial rehydration was performed with isotonic solutions in the first hour of treatment. Study does not specify the fluid used but did highlight that in Turkey treatment of DKA is initiated with 0.9% Na saline. The total volume to be given was calculated assuming a 10% deficit plus maintenance fluid. Amounts of fluids used in the initial resuscitation were subtracted from the total volume calculated for 48 hours and the infusion rate was adjusted accordingly. After initial rehydration, IV fluids were switched to solutions containing 5% dextrose and [Na+] 75 mEq/L. The patients in Group I had received IV fluids with a Na concentration of 75 mEq/L (1/2 isotonic NaCl plus 1/2 5% dextrose). During rehydration, the potassium concentration of the IV fluids was adjusted as 40 mEq/L. The patients were started on oral intake and subcutaneous insulin as soon as the acidosis was resolved, serum Na level became stable, and vomiting had stopped. After transition to oral intake, the amount of oral fluid was subtracted from the ongoing IV fluid treatment. **100 mEq/L Sodium Chloride** Initial rehydration was performed with isotonic solutions in the first hour of treatment. Study does not specify the fluid used but did highlight that in Turkey treatment of DKA is initiated with 0.9% Na saline. The total volume to be given was calculated assuming a 10% deficit plus maintenance fluid. Amounts of fluids used in the initial resuscitation were subtracted from the total volume calculated for 48 hours and the infusion rate was adjusted accordingly. After initial rehydration, IV fluids were switched to solutions containing 5% dextrose and [Na+] 100 mEq/L. The patients in Group II had received IV fluids with a Na concentration of 100 mEq/L (2/3 isotonic NaCl plus 1/3 5% dextrose). During rehydration, the potassium concentration of the IV fluids was adjusted as 40 mEq/L. The patients were started on oral intake and subcutaneous insulin as soon as the acidosis was resolved, serum Na level became stable, and vomiting had stopped. After transition to oral intake, the amount of oral fluid was subtracted from the ongoing IV fluid treatment.
Outcome measures	**Cerebral oedema** Definition not provided. **Blood glucose levels (mg/dL)** **Sodium concentration (mEq/L)**

Study arms

75 mEq/L Sodium chloride (N = 19)
100 mEq/L Sodium chloride (N = 13)

Characteristics

Study-level characteristics

	Study (N = 32)
No. of patients with new-onset diabetes Sample Size	n = 26; % = 81.3

Arm-level characteristics

	75 mEq/L Sodium chloride (N = 19)	100 mEq/L Sodium chloride (N = 13)
Age (years) Mean/SD	8.7 (4.1)	9.5 (4)
% Female No of events	n = 11 ; % = 57.9	n = 4; % = 30.8

ROBINS-I Tool		
Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Moderate (Appropriate analysis method that controlled for all the important confounding domains not conducted.)
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Low
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Low
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Low

ROBINS-I Tool		
5. Bias due to missing data	Risk of bias judgement for missing data	Low
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Low
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low
Overall bias	Risk of bias judgement	Moderate (Appropriate analysis method that controlled for all the important confounding domains not conducted.)
	Directness	Partially Applicable (Included mixed population. Data not separated out for type of diabetes. Outcome 'blood glucose' not specified in review protocol.) Directly applicable for other outcomes.