Pediatric Nephrology (2021) 36:1129
https://doi.org/10.1007/s00467-020-04639-8

CLINICAL QUIZ

When salt is needed to grow: Questions

Ester Conversano[1] · Sara Romano[1] · Andrea Taddio[1,2] · Flavio Faletra[3] · Davide Zanon[4] · Egidio Barbi[1,2] · Marco Pennesi[2]

Received: 28 May 2020 / Accepted: 2 June 2020 / Published online: 10 August 2020

Keywords Child · Metabolic acidosis · Hyperkalaemia · Hyponatraemia · Failure to thrive

Case summary

A 50-day-old girl was referred for a history of recurrent vomiting, poor feeding and moderate failure to thrive. She was born by a caesarean section at 41 + 5 weeks of gestation, from non-consanguineous parents. Her birth weight was 3430 g and she was fed with breast milk and formula. Upon admission, her weight was 3700 g (3° percentile) and blood pressure was normal. Physical examination showed mild dystrophy with poor representation of subcutaneous fat, normal external genitalia and age-appropriate psychomotor development.

Laboratory tests showed mild hyponatraemia (130 mEq/L) and hyperkalaemia (6 mEq/L), normal plasma creatinine (0.26 mg/dl) and metabolic acidosis (pH 7.23, pCO2 53 mmHg, $HCO3^-$ 21.8 mmol/L, lactic acid 7.5 mmol/L). Potassium and sodium urinary fractional excretion were 23% and 0.98%, respectively. In the urine sample, no proteinuria, white blood cells, bacteria or haematuria were detected. Abdominal ultrasound results were normal.

Due to the acidosis with persistence of poor feeding and vomiting, a hydration with an intravenous physiological solution was empirically started. While metabolic acidosis was resolved with the infusion, hyponatraemia and hyperkalaemia persisted. Further analysis revealed a significant increase of plasma renin activity and aldosterone (respectively, > 500 μUI/mL, normal value 4 44; > 1000 ng/dL, normal value 30–50).

Questions

1. What is the most likely diagnosis?
2. What would be an alternative diagnosis?
3. What is the treatment and prognosis of the disease?

Acknowledgements The authors thank Giulia Pennesi, *Edinburgh Napier University, Edinburgh, United Kingdom,* for the English revision of the manuscript.

Funding Information Open access funding provided by Università degli Studi di Trieste within the CRUI-CARE Agreement.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

The answers to these questions can be found at https://doi.org/10.1007/s00467-020-04647-8.

✉ Sara Romano
sara.romano17@gmail.com

[1] Department of Medicine, Surgery, and Health Sciences, University of Trieste, Trieste, Italy

[2] Paediatric Department, Institute for Maternal and Child Health - IRCCS "Burlo Garofolo", Trieste, Italy

[3] Genetic Department, Institute for Maternal and Child Health - IRCCS "Burlo Garofolo", Trieste, Italy

[4] Pharmacy and Clinical Pharmacology Department, Institute for Maternal and Child Health - IRCCS "Burlo Garofolo", Trieste, Italy