



Correspondence

Calcium and phosphate parenteral intake for preterm infants: Which is the better practice?



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To the Editor:

We read the recent interesting review by S. Uthaya [1], which addresses the preterm parenteral nutrition practice and discusses areas of uncertainty owing to as the current nonavailability of strong evidence.

The review presents a useful comparison of energy and macronutrient intakes. Additionally, it highlights the need to provide adequate phosphate intake while providing aggressive amino acid intake.

The addressed guidelines of the European Society for Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) [2] and the National Institute of Health and Care Excellence (NICE) of the United Kingdom [3] include non-consensual recommendations for calcium and phosphate parenteral intake in preterm infants.

While NICE recommends 1.5–2.0 mmol/kg/day of calcium and 2.0 mmol/kg/day of phosphate from the age of 2 or 3 postnatal days [3], ESPGHAN recommends 1.6–3.5 mmol/kg/day of calcium and phosphate [2], which has 75% higher maximum doses than the NICE recommended doses.

Considering the high mineral foetal blood concentrations as a reference for recommending mineral parenteral intake in preterm infants [2], several factors should be accounted. Firstly, the foetal serum concentrations are regulated by the unique intrauterine endocrine milieu [4], which is missing in parenteral nutritional solutions, to promote the solubility of calcium and phosphate. Conversely, the compounded parenteral solutions are complex, as shown by MacKay et al. [5], who reported 16 curves with different precipitation limits, based on 38,019 parenteral solutions compounded with various types and concentrations of amino acids with and without fat emulsion.

We are concerned regarding the insufficient evidence for recommending high parenteral mineral intakes for preterm infants [2]. Most studies controlled only few of the principal factors affecting calcium and phosphate compatibility and stability in those parenteral solutions. These include the organic or inorganic nature of the calcium and phosphate salts, monobasic or dibasic phosphate regimens, calcium-to-phosphate ratios, temperature, and the pH of the final solution [5–8].

Hence, efforts to ensure the better parenteral nutrition practice in preterm infants should include the optimal mineral parenteral intake.

We would like the author to share her point of view on the matter.

Declaration of competing interest

None.

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Luís Pereira-da-Silva^{a,b,*}, Daniel Virella^b

^a *Comprehensive Health Research Centre (CHRC), Medicine of Woman, Childhood and Adolescence, NOVA Medical School, Faculdade de Ciências Médicas, Universidade Nova de Lisboa, Lisbon, Portugal*

^b *Neonatal Intensive Care Unit, Hospital Dona Estefânia, Centro Hospitalar Universitário de Lisboa Central, Lisbon, Portugal*

* Corresponding author at: NOVA Medical School, Faculdade de Ciências Médicas, Campo dos Mártires da Pátria, 130, 1169-056 Lisbon, Portugal.

E-mail address: l.pereira.silva@nms.unl.pt (L. Pereira-da-Silva).

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