Hypovitaminosis D and parathyroid hormone response in critically ill children with sepsis: A case-control study

Payal Kubsad

Follow this and additional works at: https://impressions.manipal.edu/kmcmlr

Part of the Medicine and Health Sciences Commons


TITLE: Hypovitaminosis D and parathyroid hormone response in critically ill children with sepsis: A case-control study

Authors:
Payal Kubsad, MBBS (MD), Junior Resident, Department of Pediatrics
S.R. Ravikiran, MBBS, MD(Ped), Professor and HOD, Department of Pediatrics
Kamalakshi G Bhat, MBBS, MD(Ped), Professor, Department of Pediatrics
Nutan Kamath, MBBS, MD(Ped) Professor, Department of Pediatrics
Poornima A Manjrekar, MBBS, MD(Biochem), Professor, Department of Biochemistry
Sahana Devadasa Acharya, MBBS, MD(Pharmacology), Associate Professor, Department of Pharmacology

Kasturba Medical College, Manipal Academy of Higher Education, Mangalore, Karnataka 575001, India

Abstract

Background: Critically ill Indian children have higher prevalence of vitamin D deficiency. However, there is not much data available on the subgroup with sepsis. It has been reported that there is impaired response of parathyroid hormone (PTH) to vitamin D deficiency in critically ill children and adults. Hence we also sought to analyze the PTH response to vitamin D among the subgroup of critically ill children with sepsis.

Patients and Methods: Vitamin D and PTH levels 84 critically ill children with sepsis (cases), and 84 controls were compared between November 2018 and February 2020. Hypovitaminosis D was defined as levels <30ng/mL.

Results: The median (IQR) vitamin D for cases was 26 (8.65) ng/mL and that for controls 39.3 (16.55) ng/mL; P<0.001. Cases had higher prevalence of hypovitaminosis D as compared to controls (79.7% vs. 9.5% P<.001). Among the cases, mortality was 24.6% in the 65 children with hypovitaminosis D and 10.5% in those with sufficient vitamin D; the differences were not statistically significant (P=.339).There were no significant differences in the duration of PICU stay, serum calcium, PTH and disease severity among the aforementioned groups. Out of the 65 children with hypovitaminosis D, only 9 (13.8%) were PTH responders. There were no statistically significant differences in mortality, the PICU stay or disease severity at admission between PTH responders and non-responders.

Conclusions: Hypovitaminosis D was more prevalent among critically ill children with sepsis compared to controls. Parathyroid gland response to hypovitaminosis D was impaired in children with sepsis.

Key words: vitamin D deficiency, calcium, parathormone, critically ill children