

# Evaluation of vitamin D status bone mineral density and dental health in children with cholestasis

Nashwa M. Samra<sup>a</sup>, Shaimaa Emad El Abrak<sup>b</sup>, Hanaa H. El Dasha<sup>a,\*</sup>,

Mona El Said El Raziky<sup>c</sup>, Manal A. El Sheikh<sup>d</sup> <sup>a</sup> Department of Pediatrics, Fayoum

University, Fayoum city, Egypt <sup>b</sup> Department of Pediatrics, National Hepatology and Tropical Medicine Research Institute, Cairo University, Cairo, Egypt <sup>c</sup> Department of pediatric, Cairo University, Cairo, Egypt

<sup>d</sup> Faculty of Oral and Dental Medicine, Cairo University, Cairo, Egypt

## Summary

*Background:* Hepatic osteodystrophy caused by vitamin D and calcium malabsorption is thought to develop in children with cholestatic liver disease leading to secondary hyperparathyroidism and rickets or osteomalacia. The aim of this study was to evaluate the dental and bone mineral densities and the serum level of vitamin D in cholestatic infants and children and to correlate this process with clinical and laboratory parameters. *Methods:* This is a cross-sectional study that include 50 patients presenting with cholestasis. Thirty age and sex matched controls recruited not complaining of liver disease. All cases were subjected to full history taking, clinical and dental examination, 25(OH)D level, ALT, AST, bilirubin, albumin, GGT, alkaline phosphatase, PT, INR, calcium, corrected calcium, phosphorus and DXA scan to those above 5 years old. Controls were subjected to measuring the serum levels of 25(OH)D, total bilirubin, direct bilirubin, ALT, GGT, AST, PT, INR, alkaline phosphatase, albumin, calcium and phosphorus. *Results:* Out of the 50 cases; 23 were females (46%), with a mean age of  $6.17 \pm 3.9$  years ranging from 1.1 to 17 years. Twenty-eight of the cases had signs of rickets (56%), 6 of them had bone fracture (12%) and 42.8% had milky teeth caries. The level of 25(OH) vitamin D was below normal range in around half of the patients. There was significant difference between cases and controls in calcium and phosphorus levels, ALT and alkaline phosphatase. Low bone mineral