CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.3534299

Available online at: http://www.iajps.com Research Article

FREQUENCY AND RISK FACTOR OF BONE DISEASE IN PEDIATRIC INTESTINAL FAILURE

Dr. Noor Ahmed Shaikh
Associate Professor, Department of Pediatric Surgery
Ghulam Muhammad Mahar Medical College (GMMMC) Sukkur

Abstract:
Objective: *To determine the frequency and risk factor of bone disease in pediatric intestinal failure*
Patients And Methods: *A total of fifty patients of intestinal failure were explored and included in the study. The cross-sectional survey includes 50 children diagnosed as intestinal failure either gender while the exclusion criteria were the parents who refused to give consent for the study. All the clinical parameters will be explored through history, physical examination and specific investigations as required. Dual-energy X-ray absorptiometry (DXA) scans were performed routinely and the lowest bone mineral density z-scores were recorded for each patient along with routine radiography whereas the frequency / percentages (%) and means ±SD compute d for study variables.*
Results: *During six month study period total fifty children with intestinal failure were explored and study. The necrotizing enterocolitis was the most common underlying cause for intestinal failure. The mean ± SD for age (yrs) of population was 2.31±1.63. The BMD z-score ≤2.0 was identified in 30 (60%), vitamin D deficiency33 (66%), fractures 10 (20%) with male and female proportion as 35 (70%) and 15 (30%)*
Conclusion: *Metabolic bone disorderrelated with pediatric intestinal failure puts countless these patients at a lifetime danger of bone cracks and osteoporosis.*
Keywords: *Bone, Metabolic and Intestinal failure.*

Corresponding author:
Dr. Noor Ahmed Shaikh,
Email: zulfikar229@hotmail.com

QR code

Please cite this article in press Noor Ahmed Shaikh., ***Frequency And Risk Factor Of Bone Disease In Pediatric Intestinal Failure.,*** *Indo Am. J. P. Sci, 2019; 06(11).*

INTRODUCTION:

Intestinal failure (IF) is a disorder described by lacking practical gut coming about in a malabsorptive state and powerlessness to keep up hydration and nourishment expected to continue development and advancement [1]. The subsequent constrained gastrointestinal absorptive zone, steatorrhea and diminished entero-hepatic flow of bile acids places youngsters with IF at high hazard for micronutrient lacks, [2] a large number of which are basic for development and support of skeletal mass. [3] Vitamin D inadequacy for instance is seen in the same number of as 70%. [4] Furthermore, neonates on parenteral nourishment (PN) for over about fourteen days are at expanded danger of calcium and phosphorus lack on account of their restricted dissolvability in arrangement [5]. In this way, this investigation planned to evaluate the pace of low BMD in youngsters with IF and recognize hazard factors for decreased BMD along with characterize the predominance of bone cracks among youngsters with IF and their association with low BMD.

PATIENTS AND METHODS:

A total of fifty patients of intestinal failure were explored and included in the study at a tertiary care hospital. The cross-sectional survey includes 50 children diagnosed as intestinal failure either gender while the exclusion criteria were the parents who refused to give consent for the study. All the clinical parameters will be explored through history, physical examination and specific investigations as required. Dual-energy X-ray absorptiometry (DXA) scans were performed routinely and the lowest bone mineral density z-scores were recorded for each patient along with routine radiography. The data was collected on pre-designed proforma and analyzed in SPSS to manipulate the frequencies and percentages.

RESULTS:

During six month study period total fifty children with intestinal failure were explored and study. The necrotizing enterocolitis was the most common underlying cause for intestinal failure. The mean ± SD for age (yrs) of population was 2.31±1.63. The demographical and clinical profile of study population is presented in Table 1.

TABLE 1: THE DEMOGRAPHICAL AND CLINICAL PROFILE OF STUDY POPULATION

PARAMETER	MEAN ± SD
Gestational Age (Weeks)	31.21±3.42
Birth Weight (Kilograms)	2.11±0.63
BMD z-score ≤2.0	30 (60%)
Vitamin D deficiency	33 (66%)
Fractures	10 (20%)
Calcium (mg/dL)	8.31± 0.32
Duration of parentral nutrition (months)	21.14±6.14
Phosphorus (mg/dL)	4.11 ± 1.20
Residual bowel Length (cm)	84.21±75.51
Male gender	35 (70%)
Female gender	15 (30%)

DISCUSSION:

Youngsters with intestinal disappointment (IF) generally, are at an interestingly high hazard for poor bone mineralization Inability to accumulate bone mass in this basic period during youth brings about long haul osteopenia (and its orderly dismalness) in adulthood that might be hard to switch [6]. Low weight-for-age z-score (WAZ) and low serum calcium level were related with lower BMD. Of the hazard factors assessed for low BMD, a low WAZ score was a free indicator. While by and large poor nourishing status as controlled by low WAZ score is related with low BMD z-scores, not all patients with development disappointment as dictated by WAZ <-2 had proof of debilitated bone mineralization (BMD z-score <-2) [7]. Another basic essential of fitting bone homeostasis is the accessibility of sufficient calcium saves for ideal bone mineralization [8]. Past specialists have illustrated calcium supplementation to be related with diminished probability of metabolic bone sickness [9]. The higher predominance of nutrient D lack (66%) in this accomplice is likewise similar to different reports in both pediatric and grown-up IF patients [9]. A noteworthy extent of patients (20%) experienced breaks anyway no relationship with low BMD was seen [10]. It is

prudent to pursue these kids with an underlying pattern and sequential DXA filters for underlying danger stratification and along these lines to pursue skeletal wellbeing.

CONCLUSION:

Metabolic bone disorder related with pediatric intestinal failure puts countless these patients at a lifetime danger of bone cracks and osteoporosis.

REFERENCES:

1. Fitzgerald K, Mackay M. Calcium and phosphate solubility in neonatal parenteral nutrient solutions containing TrophAmine. Am J Health Syst Pharm. 1986; 43(1):88–93.
2. Touloukian RJ, Gertner JM. Vitamin D deficiency rickets as a late complication of the short gut syndrome during infancy. J Pediatr Surg. 1981; 16:230–5.
3. Theintz G, Buchs B, Rizzoli R, Slosman D, Clavien H, Sizonenko P, et al. Longitudinal monitoring of bone mass accumulation in healthy adolescents: evidence for a marked reduction after 16 years of age at the levels of lumbar spine and femoral neck in female subjects. J Clin Endocrinol Metab.1992; 75:1060–5.
4. Pironi L, Morselli Labate A, Pertkiewicz M, Przedlacki J, Tjellesen L, Staun M, et al. Prevalence of bone disease in patients on home parenteral nutrition. Clin Nutr. 2002; 21:289–96.
5. Cohen-Solal M, Baudoin C, Joly F, Vahedi K, D'aoust L, De Vernejoul M, et al. Osteoporosis in Patients on Long-Term Home Parenteral Nutrition: A Longitudinal Study. J Bone Miner Res. 2003; 18:1989-94
6. Diamanti A, Bizzarri C, Basso MS, Gambarara M, Cappa M, Daniele A, et al. How does long-term parenteral nutrition impact the bone mineral status of children with intestinal failure? J Bone Miner Metab 2010;28:351–8.
7. Lacaille F, Vass N, Sauvat F, Canioni D, Colomb V, Talbotec C,, et al. Long-term outcome, growth and digestive function in children 2 to 18 years after intestinal transplantation. Gut 2008;57:455–61.
8. Amarnath RP, Fleming CR, Perrault J. Home parenteral nutrition in chronic intestinal diseases: its effect on growth and development. J Pediatr Gastroenterol Nutr 1987;6:89–95.
9. Harrell, FE. Regression modeling strategies: with applications to linear models, logistic regression, and survival analysis. New York: Springer-Verlag; 2001.
10. Fewtrell MS. Bone densitometry in children assessed by dual x ray absorptiometry: uses and pitfalls. Arch Dis Child. 2001; 88:795–8.