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PREVALENCE AND NEONATAL PREDICTORS OF METABOLIC BONE DISEASE OF PREMATURITY IN HOSPITAL TUNKU AZIZAH KUALA LUMPUR

Muhamad Hanif Halim¹, Choi Siang Choong², Arini Nuran Md Idris², Yee Lin Lee¹

¹Department of Paediatrics, Faculty of Medicine and Health Sciences, Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia

²Department of Paediatrics, Hospital Tunku Azizah

INTRODUCTION

Metabolic bone disease of prematurity (MBDP) is characterized by biochemical and radiological findings related to bone demineralization in premature babies. Despite early recognition, MBDP is still a prevalent problem and is associated with significant morbidities in premature babies. This study aims to determine the prevalence and neonatal predictors of MBDP.

METHODOLOGY

This retrospective cross-sectional study involved premature babies with gestational age ≤ 32 weeks and birth weight ≤ 1.5 kg, admitted to Hospital Tunku Azizah, Kuala Lumpur, between January 1, 2020, and January 31, 2024. Babies whose serum phosphate was ≤ 1.5 mmol/L and serum alkaline phosphatase >500 IU/L at 3–6 weeks of age fulfilled the diagnosis of MBDP. The maternal and neonatal characteristics of the study population were retrieved from the medical records. Neonatal predictors for MBDP were analyzed by simple and multiple logistic regression.

RESULTS

A total of 292 subjects were enrolled. The prevalence of MBDP was 13.4%. On simple logistic regression, male gender, low gestational age, poor APGAR score, delayed enteral feed initiation, prolonged TPN, delayed vitamin D supplementation, use of unfortified expressed breast milk, patent ductus arteriosus, and bronchopulmonary dysplasia, cholestasis, prolonged hospital stay, and prolonged ventilation were risk factors for MBDP ($p < 0.05$). On multiple logistic regression, only cholestasis ($p = 0.014$), prolonged TPN use ($p < 0.001$), and prolonged hospitalization ($p < 0.001$) were independent neonatal predictors for MBDP.

CONCLUSION

The risk of MBDP can be reduced by shortening TPN duration and hospitalization duration and preventing cholestasis. This may be achieved by early enteral feeding initiation and use of fortified EBM, thus preventing the development of MBDP.