38 Metabolic Bone Disease

Metabolic bone disease (MBD), formerly known as osteopenia of prematurity. Clinically, it presents with poor extra-uterine growth, increased ventilator dependency and fractures. In addition, MBD has long-term consequences, including short stature and osteopenia, in young adulthood.[1]

Definition

It is best defined as reduction in bone mineral content relative to the expected level of mineralization for an infant of comparable size or gestational age in combination with radiographic and biochemical changes.[2]

Incidence

16-40% in VLBW and ELBW infants.[3]

Risk factors for MBD

Prenatal: prematurity, maternal vitamin d deficiency, placental insufficiency, genetic (high number of (TA) repeats in the ER gene.)

Postnatal: inadequate intake of calcium and phosphate, vitamin D deficiency, immoblity, drugs use such as caffeine, steroids and diuretics, long term prolonged parenteral nutrition, cholestasis.

Prevention

1. Establishment of early enteral feeding
2. Reduced duration of parenteral nutrition
3. Early fortification of human milk in babies who are at high risk for developing osteopenia

How and when to start screening?

See figure 38.1

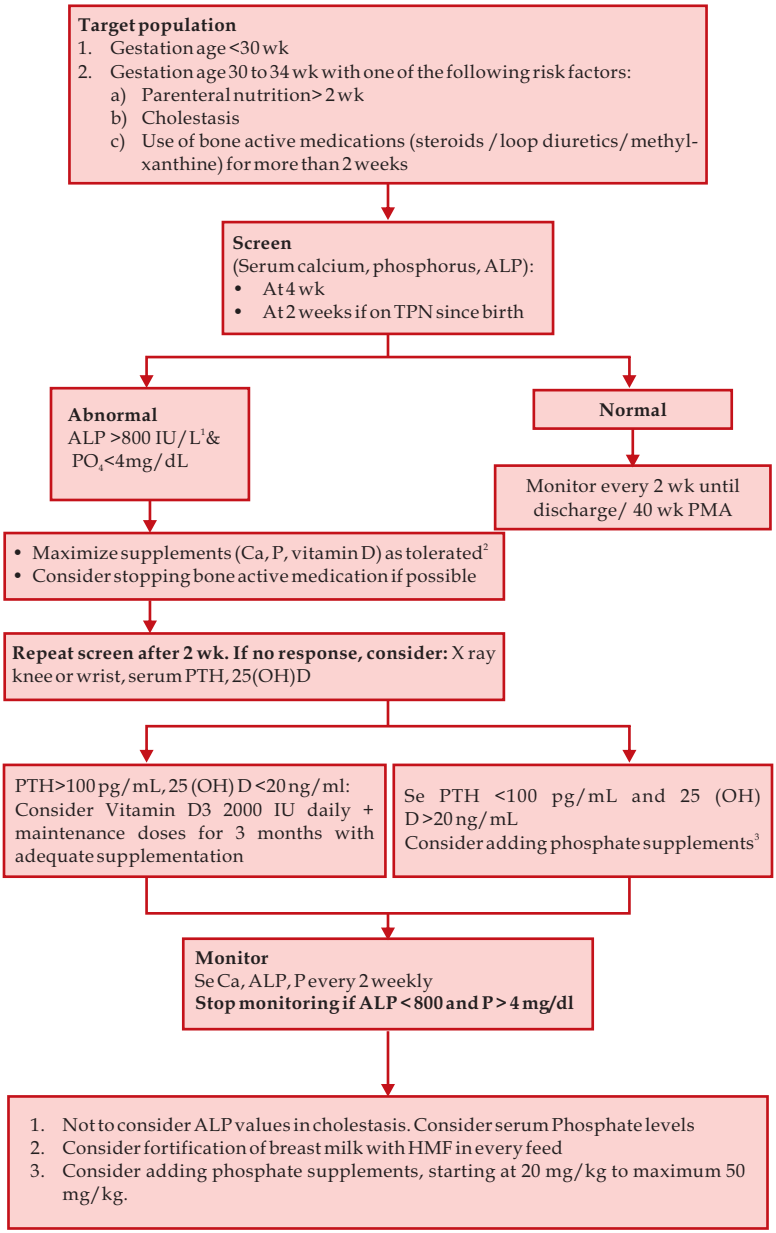

Figure 38.1: Algorithm for screening and monitoring of metabolic bone disease[4]

References

1. Greer FG. Calcium, Phosphorus, and the Preterm Infant. NeoReviews Apr 2016; 17: e195-e202.
2. Moreira A, Jacob R, Lavender L, Escaname E. Metabolic Bone Disease of Prematurity Neo Reviews Nov 2015; 16: e631-41.
3. Rustico SE, Calabria AC, Garber SJ. Metabolic bone disease of prematurity. J Clin Transl Endocrinol. 2014; 1 : 85–91.
4. Munns CF, Shaw N, Kiely M, Specker BL, Thacher TD, Ozono K, et al. Global Consensus Recommendations on Prevention and Management of Nutritional Rickets. Horm Res Paediatr. 2016; 85 : 83–106.