CME QUESTIONS (2 CME questions, answer choices, and a short discussion of the answer)

1. You are following an infant who is below the third percentile on the growth chart. What is the most common cause of failure to thrive in infants?
   a. Prenatal causes such as maternal malnutrition or placental dysfunction.
   b. Chromosomal abnormalities
   c. Thyroid and other endocrine abnormalities
   d. Feeding problems, inadequate feeding often due to psychosocial concerns.

Feeding problems and inadequate feeding are by far the most common causes of failure to thrive in infants. Diagnosis is best made by clinical observation of feeding and weight gain in the hospital. Prenatal causes usually resolve after birth with rapid weight gain. Chromosomal and endocrine etiologies are evident on physical exam and laboratory testing.

2. Laboratory results in a three month old with failure to thrive show a calcium of 18 mg/dl and an decreased alkaline phosphatase. What are the causes of this combination of lab abnormalities in infants?
   a. Williams Syndrome
   b. Bartter's Syndrome
   c. Hypervitaminosis D
   d. Hypophosphatasia
   e. Osteogenesis Imperfecta

Hypophosphatasia is the only one of these clinical entities that has a low alkaline phosphatase. Williams Syndrome is characterized by cardiac, chromosomal and facial abnormalities. Bartter's Syndrome typically presents with hypokalemia and a low blood pressure. Radiologic findings similar to rickets with hypomineralization differentiated hypophosphotasia from hypervitaminosis D which has increased mineralization. Osteogenesis Imperfecta has high alkaline phosphatase levels.

REFERENCE LIST (Please make sure to properly cite your references in the 'Discussion' section by using reference citation numbers)

1. Deeb AA, Bruce SN, Morris AAM, Cheetham, TD. Infantile hypophosphatasia: disappointing results of treatment. *ACTA Pediatrics*. 2000. 730-743.
2. Mornet E, Nunes ME. Hypophosphatasia. Gene Reviews. November 20, 2007. Available at: http://www.ncbi.nlm.nih.gov/bookshelf/br.fcgi?book=gene&part=hops. Accessed January 5, 2010.
3. Hypophosphatasia. Connective Tissue Gene Tests. 2009. Available at: http://ctgtstaging.net/tests/hypophosphatasia-infantile. Accessed November 9, 2009.
4. Gurenlian JR. Hypophosphatasia. *Access.* July 2001. 38-39.
5. Mochizuki H, Saito M, Michigami T, Ohashi H, Koda N, Yamaguchi S, Ozono K. Severe hypercalcaemia and respiratory insufficiency associated with infantile hypophosphatasia caused by two novel mutations of the tissue-nonspecific alkaline phosphatase gene. *European Journal of Pediatrics*. 2000. 375-379.

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