



POSNA

The Core Curriculum

Parathyroid disorders

Objectives

1. Describe the effect of parathyroid hormone on skeletal metabolism
2. Describe symptoms which are compatible with hyperparathyroidism or hypoparathyroidism in children

Discussion

Parathyroid hormone (PTH) has a profound effect on calcium metabolism. The major effect on the kidney is to increase the tubular reabsorption of calcium and decrease tubular absorption of phosphate. It increases activity of 1-hydroxylase in the kidney, which increases synthesis of 1,25 hydroxyvitamin D, the active metabolite of vitamin D. Effects of the active form of vitamin D (increased bowel absorption of calcium) are thus secondary effects of PTH. In addition, it mediates extraction of calcium from bone by mobilizing osteocytes in a process called "osteocytic osteolysis". PTH also increases activity and number of osteoblasts. All these effects will elevate serum calcium. Primary hyperparathyroidism has been reported in children and adolescents, although rare. Symptoms were nonspecific, such as lethargy, fatigue, and weakness.

In contrast, hypoparathyroidism is characterized by low serum calcium and hyperphosphatemia. In adults the most common reason for hypoparathyroidism is inadvertent following thyroid surgery, but there are inherited forms of congenital hypoparathyroidism. Developmental delay, seizures, and sensorineural hearing loss sometimes accompanies congenital hypoparathyroidism. The role of the orthopaedist in congenital hypoparathyroidism is essentially nonexistent.

References

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