Primary Hyperparathyroidism

This condition is characterized by an increase in parathyroid hormone (PTH) secretion, which regulates serum calcium and phosphorus levels by stimulating bone resorption of calcium, renal tubular reabsorption of calcium, and the activation of Vitamin D.



PLAY PICMONIC

Assessment

Hypercalcemia
Hiker-calcified-cow
Manifestations of hyperparathyroidism are often related to the accompanying hypercalcemia. This may include lethargy, fatigue, nausea, vomiting, and constipation.

Kidney Stones
Kidney-throwing Stones
As the calcium builds up in the body, crystals can form in the kidneys. Over time, the crystals may combine to form renal calculi or kidney stones.

Osteoporosis
Ostrich-with-porous-bones
Osteoporosis is a systemic skeletal disorder characterized by decreased bone mass and deterioration of bone microarchitecture, leading to increased bone fragility and susceptibility to fractures. It is often asymptomatic until a fracture occurs, commonly in the hip, spine, or wrist.

Arrhythmias
Broken Arrhythmia-drum
Because hyperparathyroidism leads to hypercalcemia, EKG changes may be seen, which includes a shortened QT interval and shortened ST segment. Cardiovascular changes are the most serious and life-threatening problems of hypercalcemia and should therefore be treated immediately.

Diagnostic Tests

Increased Calcium and Decreased Phosphorus
Up-arrow Calcium-cow and Down-arrow Phosphorus-P
The parathyroid glands regulate calcium and phosphate balance, thus an increase in parathyroid hormone (PTH) acts directly on the kidneys to cause increased reabsorption of calcium and increased phosphate excretion. Diagnostic tests confirming hyperparathyroidism will have a higher than normal calcium level above 10.5 mg/dL and decreased serum phosphorus levels.

Considerations

Prevent Injury
Prevent Injury and broken bones
Individuals with chronic hyperparathyroidism are at high risk for pathologic fractures due to significant bone density loss. Preventing injury is crucial when providing care and should include fall prevention techniques, educating all members of the healthcare team to handle the patient carefully, using a draw sheet when repositioning, and accompanying the patient when ambulating.

Sign up for FREE at picmonic.com

Medication Education

Medication Educator

Several medications can be used to help lower calcium levels. The patient should be educated on their proper use and to recognize signs of hypocalcemia. Loop diuretics may be used to increase urinary excretion of calcium, while bisphosphonates inhibit osteoclastic bone resorption, thereby normalizing calcium levels and improving bone mineral density.

Surgery

Surgeon

Surgical removal of the parathyroid glands (partial or complete) is the most effective treatment of hyperparathyroidism. May need to monitor for tetany related to low serum calcium levels.

Sign up for FREE at picmonic.com