**Hyperparathyroidism**

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There are four parathyroid glands in the body, they are about the size of a grain of rice and are located in the neck. The parathyroid glands produce parathyroid hormone (PTH), which helps keep the amount of calcium in the blood and in tissues that depend on calcium for functioning at the right level. But when there’s an excess amount of PTH in the bloodstream, it causes a condition called Hyperparathyroidism; this is caused by an overactivity of one or more of the parathyroid glands. Older women, usually between the ages of 50 and 60 are the most likely to have hyperparathyroidism. There are two types of hyperparathyroidism: primary hyperparathyroidism and secondary hyperparathyroidism.

In primary hyperparathyroidism, one or more of the parathyroid glands spontaneously produce an excessive amount of PTH, causing the level of calcium in the blood to rise. This can result in a variety of health problems. Primary hyperparathyroidism occurs because of problems with one or more of the parathyroid glands, which includes a noncancerous growth (parathyroid adenoma), which accounts for 80% of all cases; a cancerous growth (parathyroid cancer) which is enlargement of at least two parathyroid glands, a rare cause of primary hyperparathyroidism; or a rare inherited condition such as multiple endocrine neoplasia type 1 (*Bilezikian, 2018*).

In secondary hyperparathyroidism, an underlying condition causes low levels of calcium in the body, and over time, increased PTH levels occur. This happens because the low calcium levels prompt the body to release excessive PTH in an attempt to keep it normal and compensate for the loss. Secondary hyperparathyroidism is a result of another medical condition, which may include severe calcium and vitamin D deficiency, chronic kidney failure, taking lithium (a drug most often used in treating bipolar disorder), exposure to radiation from cancer treatment, or having inherited certain disorders that affect several glands throughout the body (endocrine neoplasia). An increased risk of developing the condition occurs in people who have had prolonged severe calcium or vitamin D deficiency (*Silva, 2018*).

In many cases, people with this condition have no symptoms. However, when symptoms occur, some objective clinical descriptions may include elevated calcium and PTH levels, presence of adenoma or hyperplasia on neck ultrasound, osteoporosis on bone scan, bone loss using bone mineral density tests, evaluation of renal function through serum creatinine tests, and increased calcium excretion through urine tests. Subjective clinical descriptions may include joint pains, fatigue, thinning bone (osteoporosis), excessive urination, abdominal pain, depression, kidney stones, loss of appetite, nausea or vomiting, muscle weakness, or cognitive impairments.

If a routine blood test shows a high calcium level in the blood, hyperparathyroidism might be suspected. To confirm this diagnosis, the doctor will need to perform other tests, such as additional blood tests to make a more accurate diagnosis; urine tests to determine the severity of the condition, bone mineral density tests to measure the amount of calcium and other bone minerals packed into a segment of bone, imaging tests such as X-ray of the abdomen, and a kidney ultrasound to look for kidney stones.

The doctor may recommend no treatment and regular monitoring if the calcium levels are slightly elevated, the kidneys functioning normally, no kidney stones are present, bone density is normal or just slightly below normal, or have no other symptoms that may improve with treatment. Periodically scheduled tests are recommended for this treatment option. This aims to help monitor the blood-calcium levels and bone density. Medications include calcimimetics, biphosphonates, or hormone replacement therapy for women who have gone through menopause and have symptoms of osteoporosis (*Insogna, 2018*). Surgery is the most common treatment for primary hyperparathyroidism and provides a 95% chance of cure. During surgery, a surgeon will remove only those glands that have a tumor or are enlarged.

Hyperparathyroidism is relevant among dental hygienists because of its possible effects on oral health (periodontal disease and tooth mobility), the significance of radiographic findings (Brown tumors, osteoporosis, or cystic lesions), the necessity of working with other healthcare professionals (interprofessional education), and the hygienists' role in patient education, medical considerations, and overall healthcare management.

**Works Cited:**

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