PARATHYROID

The four parathyroid glands contain ***chief cells*** and they secrete the parathormone. Parathyroid glands are located immediately behind the thyroid gland.

Parathormone regulates calcium and phosphate.

- *Hypocalcemia* produces a rapid increase in PTH secretion from the parathyroid glands.
- Hypocalcemia causes parathormone to increase serum calcium concentrations. *Hyperphosphatemia also stimulates parathormone secretion*. **Hypomagnesemia** *inhibits parathormone secretion*.
- Parathyroid hormone *controls extracellular calcium and phosphate levels* by the regulation of intestinal reabsorption, renal excretion, and exchange between the extracellular fluid and bone.
- Release of PTH **leads to increased calcium levels and a decrease in phosphate levels**. It accomplishes this in two ways: osteocytes initially and then osteoclasts later.

Stridor/laryngospasm after thyroidectomy results from hypocalcemia secondary to hypoparathyroidism after inadvertent removal of parathyroid glands. Laryngeal muscles are very sensitive to decreased calcium.

Hyperparathyroidism

- **Hallmark hypercalcemia** (serum Ca2 + concentration greater than 5.5 mEq/L and ionized calcium concentration greater than 2.5 mEq/L)
- Perioperative goal: is to *correct intravascular volume and electrolyte abnormalities.*
- *Normal saline and loop diuretics are administered to increase calcium excretion* by hydration and diuresis. **Avoid lactated Ringers**.
- *Increased dosing of nondepolarizing muscle relaxants*
- Osteitis fibrosa cystica is the bone disease of hyperparathyroidism. There is a leaking of Ca2+ out of bone, which leads to degeneration and broken, brittle bones.

Hu, S., Shu, T., Xu, S. *et al.* Ultrasound-guided bilateral superficial cervical plexus block enhances the quality of recovery of uremia patients with secondary hyperparathyroidism following parathyroidectomy: a randomized controlled trial. *BMC Anesthesiol* **21**, 228 (2021). https://doi.org/10.1186/s12871-021-01448-w