

Causes

- **↓ Intake of Ca⁺⁺**
 - Poor nutritional intake
 - ↓ Mg⁺ levels (effects PTH secretion)
 - Vit D deficiency
- **Improper absorption**
 - ↑ GI mobility from diarrhea
 - Laxative abuse
 - Chronic malabsorption syndrome
 - Lack of Vit D
 - Anticonvulsants can interfere
 - ↑ P level
 - ↓ Gastric acidity
- **Excessive Ca⁺⁺ loss**
 - Pancreatic insufficiency > loss in feces
 - Acute pancreatitis
 - ↓ PTH secretion
 - Meds can ↓ Ca⁺⁺ reabsorption from bone
 - ↑ Renal excretion

S/S

- Anxiety, confusion, irritability → seizures
- Paresthesia, twitching, **muscle cramps**, tremors, hyperactive DTR
- **Tetany: + Chvostek's or Trousseau's sign**
- **Numbness & tingling of fingers**
- **Weak cardiac contractions**
- **Poor blood clotting**
- **Brittle, dry hair & nails**

Hypocalcemia

< 8.9 mg/dl Total Serum Ca⁺⁺
< 4.4 mg/dl Ionized Ca⁺⁺

Parathyroid (PTH) pulls –
Calcitonin keeps
PTH pulls Ca⁺⁺ out of bone,
Calcitonin keeps it there

Associated Drugs

- Aluminum containing antacids
- Anticonvulsants
- Beta-adrenergic blockers
- Caffeine
- Calcitonin
- Corticosteroids
- Drugs that ↓ Mg⁺ levels
- Edetate disodium (for tx of lead poisoning)
- Heparin
- Loop diuretics
- Mithraycin
- Phosphates (oral, IV, rectal)

Labs/Diagnostics

- Total Serum Ca⁺⁺ <8.9
- Ionized Ca⁺⁺ < 4.4
- ↓ Albumin level
- EKG changes

Tx

- IV gluconate or IV CaCl
- Mg⁺ replacement may also be needed (↓ muscle excitability)
- Vit D supplements to promote GI absorption
- Oral supplements
- Diet adjustment