

# HYPERCALCEMIA - PROVE BM

## PARATHYROID DYSFUNCTION

### A. Primary

1. Sporadic
  - PTH adenoma
  - PTH hyperplasia
  - PTH carcinoma
2. Hereditary
  - MEN 1
  - MEN 2
  - Isolated adult hyperparathyroidism
  - Familial hypocalciuric hypercalcemia
3. Ectopic

### B. Secondary (Do not cause $\uparrow$ Ca<sup>++</sup>)

1. Renal failure
2. Osteomalacia
3. Pseudohyperparathyroidism
4. Malabsorption

### C. Tertiary (Autonomous PTH post secondary)

### D. Other

1. Lithium
2. Recovery from acute renal failure

## RENAL FAILURE

1. Acute renal failure

## OTHER

1. Estrogens and anti-estrogens
2. Serum protein abnormalities
3. Milk-alkali syndrome

## VITAMIN D EXCESS

1. Vit. D intoxication
2. Granulomatous diseases
  - Sarcoid
  - TB, Leprosy
  - Fungi (Histoplasmosis)
3. Idiopathic hypercalcemia of infancy

## ENDOCRINE

1. Hyperthyroidism
2. Adrenal insufficiency
3. VIP-oma syndrome

## BONE TURNOVER INCREASED

- Hyperthyroidism
- Immobilization w/ Paget's disease
- Thiazides
- Vit. A intoxication

## MALIGNANCY

### A. Local osteolysis

1. Multiple myeloma
2. Lymphoma
3. Some breast cancers
4. Prostate cancer

### B. Humoral

1. Vit. D-like substance
  - B-cell Lymphoma
  - Hodgkin's disease
2. PTH- related peptide mediated
  - a. Squamous and epidermoid carcinomas
    - Pharynx
    - Larynx
    - Lung
    - Esophagus
    - Cervix
    - Vulva
    - Skin
  - b. Common
    - Breast CA
    - Ovarian CA
    - Bladder and kidney CA
  - c. Uncommon
    - T-cell lymphoma
    - HTLV 1 - associated leukemia
    - Pheochromocytoma
    - Islet cell neoplasms of pancreas