OVERVIEW OF OSTEOPOROSIS

FLAME LECTURE: 48

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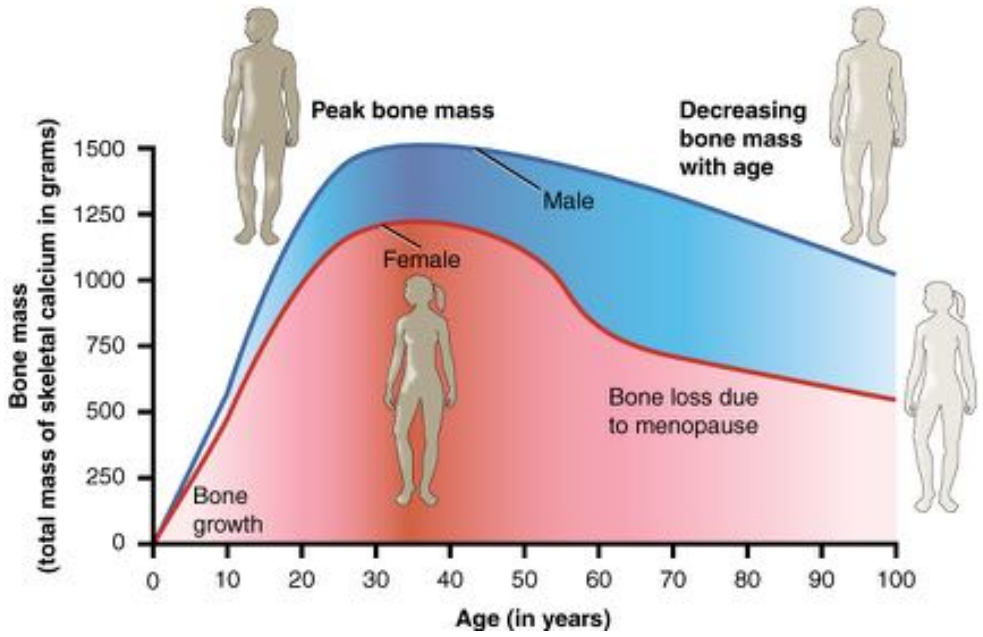
LEARNING OBJECTIVES

- To understand the difference between osteopenia and osteoporosis
- To describe the characteristics of each
- Prerequisites:
  - NONE
- See also – for closely related topics
  - FLAME LECTURE 49: Pathophysiology of osteoporosis
  - FLAME LECTURE 50: Secondary Osteoporosis

BONE EPIDEMIOLOGY

- Acquisition of bone during childhood and adolescence accounts for 90% of adult bone mass



OSTEOPOROSIS EPIDEMIOLOGY

- A chronic, progressive disease characterized by low bone mass, microarchitecture deterioration of bone tissue, bone fragility, and a consequent increase in fracture risk
- Affects more than 10 million Americans
- Women have twice the fracture rate of men, but sustain 80% of hip fractures because older women outnumber older men
- Morbidity and loss of function can occur with all fractures and present a significant burden on the individual, families, and society
- Morbidity and mortality are especially high with hip fractures

OSTEOPENIA

- Is an early sign of bone weakening manifested by lower peak bone density
- Precursor to osteoporosis
- Like osteoporosis, it is treatable, but not curable

RISK FACTORS FOR BMD LOSS

- FHx of osteoporosis
- Previous low-impact bone fracture
- Smoking
- ↑↑ etoh intake (>4 drinks/d for men; >2 drinks/d for women)
- Excessive caffeine > 2.5 cups of coffee per day
- Rheumatoid arthritis
- Asian or white descent
- Thin body habitus
- Long-term corticosteroids or anticonvulsant use
- Low estrogen in women
- Low testosterone in men
- Malabsorption conditions like celiac disease
- Inactive lifestyle or extended bedrest/immobilization
- Anorexia nervosa
- Low calcium and vitamin D intake

DIAGNOSES

- Bone mineral density (BMD) testing provides a numerical rating called a "T score"
  - T scores > -1.0 are considered normal and indicate healthy bone
  - T scores between -1.0 and -2.5 indicate osteopenia
  - T scores ≤ -2.5 indicates osteoporosis
- T score should NOT be used for men <50 yo, children, or premenopausal women
- Z score (age and sex norms) advised for these groups
  - Z scores of -2.0 or less are below the expected range for age

IMPORTANT LINKS / REFERENCES

1. https://www.emedicinehealth.com/osteopenia/article_em.
2. https://www.bones.nih.gov/health-info/bone/osteoporosis/
3. https://www.aafp.org/afp/2015/0815/p261.html