

Osteoporosis

Andrew Ying-Siu Lee, MD, PhD.

- = skeletal disease characterized by low bone mass and microarchitectural deterioration of bone tissue → bone fragility and susceptibility to fracture**
- Commonly old women affecting vertebral, hip and wrist.**
- Hip fracture (most devastating): 5-20% will die within 1 year and >50% incapacitated**
- Bone mineral density (BMD) measurement by dual X-ray absorptiometry, recommended for patients with risk factors, radiographic evidence, previous fragility fracture etc.**

Risk factors for fragility fracture

- Age, low BMD, female gender, history of fragility fracture, history of parental hip fracture, low body weight, severe immobility, lifestyle (smoking, alcohol), diseases (rheumatoid arthritis, osteoarthritis, endocrine disease, chronic obstructive pulmonary disease, diabetes mellitus, chronic renal failure etc.)

Classification of osteoporosis

- **Normal** **bone mineral density (BMD)**
not more than 1 standard
deviation (SD) below young
normal adult mean (T score ≥ -1)
- **Osteopenia** **BMD 1 – 2.5 SD below**
(low bone **(T score -1 to -2.5)**
mass)
- **Osteoporosis** **BMD ≥ 2.5 SD below**
(T score ≤ -2.5)
- **Severe** **osteoporosis with fragility**
osteoporosis **fracture**

Etiology of osteoporosis

- **Genetic, metabolic and environmental factors that determine bone growth, bone mass, calcium homeostasis and bone loss, influenced by aging, physical inactivity, sex hormone deficiency and nutritional status**

Therapy of osteoporosis

- **Exercise**
- **Calcium and vitamin D supplementation**
- **Nasal spray calcitonin (reduce fractures)**
- **Biphosphonates eg. etidronate, alendronate**
- **Parathyroid hormone**