Introduction

Only 20% of patients with a previous hip or other fragility fracture receive treatment for osteoporosis. For example, in united states, between 12% and 25% of patients with a hip fracture had testing of bone density, fewer than 25% were given calcium and vitamin-D supplements, and fewer than 10% were treated with effective anti-osteoporosis medications ***(Dell et al, 2008).***

Osteoporosis is a major public health issue characterized by compromised bone strength, which predisposes a patient to increased risk of fracture. It affects at least 1/4 of all postmenopausal white women in the United States and the proportion rises to 70% in women older than 80 years ***(Atik et al, 2006).***

One in three women older than 50 years will have an osteoporotic fracture that causes a considerable social and financial burden on society. One person in the European Union sustains an osteoporotic fracture every 30 seconds, and the annual first-year direct cost of treating all osteoporotic fractures is estimated at €25 billion. Osteoporosis is a prevalent, underdiagnosed, and undertreated disease ***(Martens and Shaw, 2008)***

When balance of bone remodeling is disrupted, bone resorption may exceed bone formation, thus leading to low bone mass, poor bone quality, and an increased risk of bone fracture. Osteoporosis is characterized by an increase in osteoclast bone resorption improperly balanced by osteoblast bone formation. Estrogen deficiency in postmenopausal women is the key in osteoporosis pathogenesis ***(Nochowitz et al,2009).***

Diagnosis of osteoporosis relies on the quantitative assessment of bone mineral density (BMD). Several methods of imaging have been developed to measure BMD, including dual-energy x-ray absorptiometry (DXA) and quantitative computed tomography (QCT). The WHO guidelines for the diagnosis of osteoporosis are based on DXA measurements of the hip or spine *(**Lane, 2006**)*.

Many lines of treatment are available to treat osteoporosis from prevention by reaching the maximal BMD in the 3rd decade of life to the treatment by either non pharmacological methods such Balanced diet, Exercise, Smoking and alcohol intake cessation, correction of errors of refraction *(**Delaney ,2006**)*, or pharmacological drugs which currently approved for treatment of osteoporosis include alendronate, ibandronate, risedronate, calcitonin, teriparatide, zoledronic acid and raloxifene ***(Qaseem et al, 2008)***.

Osteoporotic fractures present a unique challenge to the orthopedic surgeon. Osteoporotic bone does not allow generation of sufficient screw torque to achieve secure plate and screw fixation. Methods of internal fixation that allow load sharing, thereby minimizing the bone-implant stresses, have produced the best results. Intramedullary nails, sliding hip screws, and tension band constructs are examples of techniques that achieve more stable internal fixation in osteoporotic bone. The introduction of locking plates has added an effective new technology to the surgeon's armamentarium. Recent reports verify the usefulness of this new technology in the treatment of proximal humerus fractures (***Fankhauser et al, 2005***), distal femur fractures ***(Wong et al, 2005)***, and fractures of the distal radius ***(Ring and Jupiter, 2005)***.

Aim of the work

The aim of this work is to reach the latest theories of pathogenesis and clarify the new modalities of proper and early diagnosis and treatment of post-menopausal osteoporosis from the orthopedic point of view.