Chapter (1)

INTRODUCTION AND AIM OF THE WORK

Introduction:

Osteoporosis is defined as a skeletal disorder characterized by compromised bone strength predisposing a person to an increased risk of fracture. Bone strength primarily reflects the integration of bone density and bone quality. Bone density is expressed as grams of mineral per area or volume, and in any given individual is determined by peak bone mass (PBM) and amount of bone loss. Bone quality refers to architecture, turnover, damage accumulation (eg, micro-fractures), and mineralization. A fracture occurs when a failure-inducing force such as trauma is applied to osteoporotic bone ***(NIH Consensus Development Panel on Osteoporosis Prevention, Diagnosis, and Therapy, 2001).***

Currently it is estimated that over 200 million people worldwide have osteoporosis. It has been calculated that worldwide approximately 1.5 million fragility fractures occur every year ***(Holroyd et al., 2008) and (Tow et al., 2009).***

Moreover, the world population is expected to rise from the current 323 million individuals aged over 65 years to 1555 million by the year 2050, and thus the prevalence of osteoporosis will change substantially ***(Holt et al., 2009).***

Forty percent of women in Europe suffer one or more osteoporotic fractures in their lifetime and the resulting medical, social and financial burdens are great ***(Williams et al., 2009).***

Osteoporosis continues to be an under-recognized problem in men, and it goes untreated in the majority of men with fractures. One third of all hip fractures worldwide occur in men, and more men than women die in the year after a hip fracture, with a mortality rate in men of up to 37.5% ***(Jiang et al., 2005).***

Fracture of a bone is the most significant consequence of osteoporosis. For comparison, while every eighth woman suffers from breast cancer, every third woman sustains a fracture due to osteoporosis. Although osteoporosis can attack any bone in the body, the typical sites of osteoporotic fractures are the hip, the spine and the wrist. From the age of 50 years onwards, a woman has the following risk for a fracture:

- Vertebral 32%.
- Lower arm 16%.
- Hip 15 %. ***(Bartl et al., 2009).***

The specific goals of the orthopedic management of osteoporotic fractures are:

- Early surgical management,
- Rapid mobilization and
- A return to normal activities as soon as possible.

(Geusens 2009).