



6. DUAL-ENERGY X-RAY ABSORPTIOMETRY /DEXA, THE STANDARD IN THE DIAGNOSIS OF OSTEOPOROSIS

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Introduction. Osteoporosis is a problem of global importance, clinically asymptomatic and has been placed by the World Health Organization in the list of diseases related to the aging of the population. This pathology is of great economic importance and is characterized by the compromise of mechanical resistance and damage to the bone's microarchitecture, resulting in fractures.

Aim of study. Assessment of bone mineral density, a method for the early detection of osteoporosis.

Methods and materials. This literary review was written after analyzing articles, guides and reports from PubMed, Google Scholar, Hinari databases. Only full and open access publications were analyzed. Reference period – the last five years.

Results. Analysis of prospective cohort studies allowed establishing the direct link between decreased bone mineral density and increased fracture risk. In addition, there is a strict correlation between the increase in bone mineral density on the background of anti-osteoporotic treatment and the decrease in the frequency of subsequent fractures. Dual energy X-ray absorptiometry (DEXA), the standard in the diagnosis of osteoporosis, is currently used to assess the state of bone tissue. Based on several studies, the effectiveness of this method for the assessment of fracture risk has been demonstrated. The basic indicators of bone tissue mineralization by the DEXA method are: bone mineral content, the amount of mineralized tissue (g) by scanning the bones determined by the length of the scanned surface (g/cm) and the density of mineralized bone tissue in the scanned area (g/cm²). Currently, bone mineral density is appreciated using two scores T and Z. The World Health Organization relies on the determination of bone mineral density by the T score, and defines osteoporosis as the presence of a bone mineral density of 2.5 standard deviations below the mean for young women. Before the widespread application of DEXA, osteoporosis was rarely diagnosed, only in women with symptomatic vertebral fractures or osteopenia observed radiographically for other reasons. The FRAX tool was developed to assess 10-year fracture risk. It is a questionnaire that integrates associated risks and bone mineral density measured by DEXA at the level of the femoral neck. Questions included are: sex, age, height, weight, presence/absence of previous fractures and rheumatoid arthritis, glucocorticoid administration, risk factors smoking and consumption of 3 or more units of alcohol per day. FRAX was developed from the study of population-based cohorts in Europe, North America, Asia and Australia.

Conclusion. In the absence of osteoporotic fractures, the physical examination may not reveal any particularity. Bone hardness and resistance to fractures depend on bone mineral density, its assessment by DEXA and FRAX is of major importance for early diagnosis and prognosis.