

Evaluating the Importance of Early Osteoporosis Screening in Women Aged 40-50 Years

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Osteoporosis, a progressive bone disease characterized by decreased bone density and increased fracture risk, often develops silently following osteopenia and remains undiagnosed until advanced stages, posing a major public health concern. Early screening in women aged 40–50 years is crucial, as hormonal changes during this period accelerate bone loss, allowing for the initiation of preventive strategies and reducing long-term health complications and healthcare costs. The aim of this study is to determine the importance of early screening and risk factors for osteoporosis and osteopenia among women aged 40-50 years. This is a retrospective, descriptive cross-sectional study conducted using data from 125 patients referred for Dual-energy X-ray Absorptiometry (DXA) scans to the Nuclear Medicine Unit, University of Peradeniya from January 2024 to March 2025. Data on potential risk factors including surgical menopause, breast cancer, inflammatory arthritis, endocrine disorders, and long-term steroid treatment were collected through medical records and standardized routine questionnaires used for assessing bone mineral density (BMD) studies. DXA scans were utilized to assess BMD, the gold standard method of diagnosing osteoporosis. BMD classification followed the International Society for Clinical Densitometry criteria. The BMD values for forearm, left hip, and lumbar spine were analyzed. Osteoporosis and osteopenia were considered as having low BMD. In the age group of 40–50-year women, 74% had either osteopenia or osteoporosis at the time of study. Among those, the percentages of commonly identified risk factors were 21.92% for surgical menopause, 43.84% for breast cancer, 12.33% for inflammatory arthritis, 27.40% for Diabetes, 28.77% for hypothyroidism, and 35.62% for long-term steroid therapy while less than 5% had conditions like hyperparathyroidism and hyperthyroidism. A comparison of low BMD and normal BMD patients with identified risk factors showed low BMD is associated with identified risk factors which is statistically significant ($p=0.007$). This study demonstrates a high prevalence of osteopenia and osteoporosis among women aged 40–50 years, with substantial links to multiple risk factors. The findings highlight the need for screening to diagnose osteoporosis before the age of 50 to prevent the later consequences associated with osteoporosis, which impair quality of life

Keywords: Osteoporosis, osteopenia, risk factors