

Osteoporosis & You Beyond your 60s AND 70s

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ABSTRACT

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Osteoporosis remains a silent disease until fractures occur, which can result in disability, a reduced quality of life, and higher mortality. Fortunately, effective treatments exist for diagnosis and prevention before fractures happen. Early diagnosis through risk assessment and BMD measurement is key to effective management. Primary healthcare providers and public health initiatives must prioritize the prevention, detection, and treatment of osteoporosis to alleviate the burden of this disease as the global population ages.

Keywords: Osteoporosis, Fracture, Bone Density

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INTRODUCTION

“Osteoporosis” means “porous bones” in Greek. It is a condition characterized by bone fragility and fractures. As the population ages, the prevalence of osteoporosis increases, imposing significant financial burdens on families and healthcare systems, and exacerbating public health issues.¹ It is the most common chronic metabolic bone disease, marked by increased bone fragility and age-related fractures, which decrease the quality of life.^{2,3} Each geriatric fracture signals the risk of another. Osteoporosis often develops silently without symptoms until fractures occur, leading to increased morbidity and potentially fatal outcomes.

Definition

Osteoporosis is defined as “a progressive systemic disease characterized by low bone density and micro-architectural deterioration of bone tissue, resulting in increased bone fragility and susceptibility to fractures.”⁴ The consequences of compromised bone strength, particularly vertebral and hip fractures, significantly contribute to frailty, increased morbidity, and mortality, posing serious public health issues in the elderly population.⁵

AGEING AND SENESCENCE

Aging involves time-related degeneration, loss of repair function, and deterioration of essential physiological functions.⁶ Distinguishing the characteristics of aging from age-related diseases such as cancer, heart disease, diabetes, and neurodegenerative disorders is important. The maximum possible lifespan for humans is estimated to be 121 years, though life expectancy varies based on population characteristics. Senescence, the process of growing older, involves cells aging and ceasing to divide, which can lead to inflammation and damage to healthy cells, contributing to cancer and other degenerative diseases.

BURDEN OF ILLNESS

Approximately 200 million people worldwide are estimated to have osteoporosis.⁷ While it affects both men and women, women are four times more likely to develop the disease due to hormonal imbalances post-menopause. After age 50, one in two women and one in four men will experience an osteoporosis-related fracture. Osteoporosis causes over two million fractures annually, a number that continues to grow. Preventive measures and treatments can slow bone loss and mitigate the impact of the disease.

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RECENT ADVANCES IN MANAGEMENT

Remarkable advances in basic and clinical research have provided evidence-based options for the prevention and treatment of osteoporosis, including lifestyle and dietary changes and medications such as bisphosphonates and selective oestrogen receptor modulators (SERMs) like Raloxifene.⁸ Raloxifene has been shown to increase bone mineral density, reduce vertebral fractures, and offer additional benefits such as cardio protection and breast cancer prevention.

MEASUREMENT OF OSTEOPOROSIS

Osteoporosis is evaluated by calculating bone mineral density (BMD) using techniques such as DEXA (Dual-Energy X-ray Absorptiometry), QCT (Quantitative Computed Tomography), and QUS (Quantitative Ultrasonography).⁹ BMD measures the strength of bones and helps diagnose osteoporosis when it falls below a certain threshold.

RISK FACTORS

Common risk factors for osteoporosis include genetic predisposition, sex, age, early/surgical menopause, smoking, prolonged corticosteroid use, malabsorption syndromes, and endocrine disorders.¹⁰ Orthopaedic surgeons often treat age-related fragility fractures, which most commonly affect the femoral neck, proximal humerus, vertebrae, and distal radius.

PREVENTION

Prevention of osteoporosis involves achieving normal peak bone mass through adequate nutrition, calcium and vitamin D intake, regular menstrual cycles, and a balanced exercise program. After menopause, women experience accelerated bone loss, and both men and women continue to lose bone mass with age.¹¹ Preventive measures also include fall prevention programs, mobility stability exercises, and the use of walking aids.

MANAGEMENT

Awareness of osteoporosis is limited among the public and healthcare professionals. Early diagnosis through risk assessment and BMD measurement is key to effective management. Treatment strategies can reduce fracture rates and improve bone mineral content.

Nonpharmacologic treatments include nutritional considerations, exercise, fall prevention, behavioural changes, and osteopathic manipulative treatment. Primary physicians play a crucial role in the early

recognition and treatment of osteoporosis.

Calcium and Vitamin D Supplementation

Maintaining serum calcium levels is essential for preventing osteoporosis. Recommended daily intake is 1000 mg for men aged 50–70 and 1200 mg for women over 50 and men over 70. Vitamin D aids calcium absorption and can be obtained through sunlight exposure or fortified milk. Normal serum values of vitamin D range from 70 to 80 nmol/lit, with a recommended daily allowance of 800 to 1000 IU.

CONCLUSION

Osteoporosis is a silent disease until fractures occur, leading to disability, impaired quality of life, and increased mortality. Effective treatments are available for diagnosis and prevention before fractures happen. Primary healthcare providers and public health initiatives must prioritize the prevention, detection, and treatment of osteoporosis to mitigate the burden of this disease as the global population ages.

END NOTE

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