

Canadian Consensus Conference on Osteoporosis, 2006 Update

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ABSTRACT

Objective: To provide guidelines for the health care provider on the diagnosis and clinical management of postmenopausal osteoporosis.

Outcomes: Strategies for identifying and evaluating high-risk individuals, the use of bone mineral density (BMD) and bone turnover markers in assessing diagnosis and response to management, and recommendations regarding nutrition, physical activity, and the selection of pharmacologic therapy to prevent and manage osteoporosis.

Evidence: MEDLINE and the Cochrane database were searched for articles in English on subjects related to osteoporosis diagnosis, prevention, and management from March 2001 to April 2005. The authors critically reviewed the evidence and developed the recommendations according to the *Journal of Obstetrics and Gynaecology Canada's* methodology and consensus development process.

Values: The quality of evidence is rated using the criteria described in the report of the Canadian Task Force on the Periodic Health Examination. Recommendations for practice are ranked according to the method described in this report.

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Key Words: Osteoporosis, prevention, treatment, diagnosis, bone mineral density, dual energy X-ray absorptiometry, bone turnover markers, vertebral fractures, fragility fractures, antiresorptive, hormone therapy, selective estrogen receptor modulator, bisphosphonates, calcitonin, anabolic, bone forming agent

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RECOMMENDATIONS:

1. The goals of osteoporosis management should be fracture risk assessment and prevention of fracture (IB). Bone mineral density should not be viewed as the only indicator for management success because therapy may or may not be associated with significant increases in BMD. (IA)
2. Physicians should be aware that a prevalent vertebral or non-vertebral fragility fracture markedly increases the risk of future fracture. (IA)
3. Fragility fracture after the age of 40, over 65 years of age without fragility fracture, low BMD, and family history of osteoporotic fracture (especially maternal hip fracture) should be recognized as the key risk factors for fragility fractures. Systemic glucocorticoid use of more than 3 months duration should be considered as another major risk factor. (IA)
4. Evaluation of osteoporosis in postmenopausal women should include the assessment of clinical risk factors for low BMD and BMD testing. (IB)
5. Central (hip and spine) measurements by dual energy X-ray absorptiometry (DXA) should be used for both risk assessment (IA) and follow-up (IB), as they provide the most accurate and precise measurements of BMD.
6. Further evidence should be collected to determine the role of peripheral BMD measurements (e.g., ultrasound or DXA measurements in the radius, phalanx, or heel) in clinical practice. (II-2D)
7. Postmenopausal women with historical height loss greater than 6 cm, prospective height loss greater than 2 cm, kyphosis, or acute incapacitating back pain syndrome should be sent for spine radiographs with a specific request to rule out vertebral fractures. (IA)
8. Until more data becomes available on other clinical applications, bone turnover markers can be used to rapidly assess adherence and effectiveness of pharmacological interventions. (IB)

Calcium and Vitamin D

9. Although it might not be sufficient as the sole therapy for osteoporosis, routine supplementation with calcium (1000 mg/d) and vitamin D3 (800 IU/d) is still recommended as mandatory adjunct therapy to the main pharmacological interventions (antiresorptive and anabolic drugs). (IB)

Hormone Therapy

10. Hormone therapy (HT) should be prescribed to symptomatic postmenopausal women as the most effective therapy for symptom relief (IA) and a reasonable choice for the prevention of bone loss and fracture (IA). The risks should be weighted against the benefits if estrogen therapy is being used solely for fracture prevention. (ID)

Bisphosphonates

11. Treatment with alendronate or risedronate should be considered to decrease vertebral, non-vertebral, and hip fractures. (IA)
12. Treatment with etidronate can be considered to decrease vertebral fractures. (IB)

Selective Estrogen Receptor Modulators

13. Treatment with raloxifene should be considered to decrease vertebral fractures. (IA)

Calcitonin

14. Treatment with calcitonin can be considered to decrease vertebral fractures and to reduce pain associated with acute vertebral fractures. (IB)

Parathyroid Hormone

15. Treatment with teriparatide should be considered to decrease vertebral and non-vertebral fractures in postmenopausal women with severe osteoporosis. (IA)

Combination Therapy

16. Although combination of antiresorptive therapies may be synergistic in increasing bone mineral density, the anti-fracture effectiveness has not been proven; therefore, it is not recommended. (ID)

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INTRODUCTION

Osteoporosis is a systemic skeletal disorder characterized by a low BMD and microarchitectural deterioration of bone tissue, leading to enhanced bone fragility and a consequent increase in fracture risk.¹ The condition is usually painless until a fracture occurs. Because of its association with fractures, osteoporosis is a major public health hazard with high morbidity, mortality, and social costs. Recent advances in measuring BMD have provided strategies to assess the presence and extent of early and asymptomatic osteoporosis.

EPIDEMIOLOGY

Osteoporosis is a major public health problem in Canada and its prevalence is increasing as the population ages.² According to results from BMD assessments in the Canadian Multicentre Osteoporosis Study (CaMOS), the prevalence of osteoporosis in Canadian women aged 50 years and over was 12.1% at the lumbar spine and 7.9% at the femoral neck, with a combined prevalence of 15.8%.³ The prevalence of osteoporosis increases with age from approximately 6% at 50 years of age to over 50% above 80 years of age.⁴ In light of these statistics and the aging of the population, it comes as no surprise that osteoporosis will be an even greater problem in the future.

Based on fracture data, it has been estimated that approximately 1 in 4 women and 1 in 8 men in Canada have osteoporosis.^{5,6} The public health and clinical importance of osteoporosis lies in the fractures that occur. Conservative

estimates have suggested that a 50-year-old Caucasian woman has a remaining lifetime fragility fracture risk of 40% (for hip, vertebra, or wrist).⁷

SOGC Clinical Tip

Osteoporosis Canada (former Osteoporosis Society of Canada) recommends that all postmenopausal women older than 50 years be assessed for the presence of risks factors for osteoporosis.

Social and Medical Outcomes of Fracture

The medical and social consequences of fractures make osteoporosis an important public health problem. About 20% of women and 40% of men die within 1 year after a hip fracture.⁸ It has been estimated that 50% of women who sustain a hip fracture become functionally dependent in their daily activities, and 19% require long-term nursing home care because of the fracture.⁸ Vertebral fractures appear to be associated with similar 5-year mortality.⁹⁻¹¹ Only one-third of all vertebral fractures are clinically diagnosed.¹² In addition to health care costs, vertebral fractures cause back pain, loss of height, depression, and low self-esteem.¹³ Wrist and other fractures have considerable morbidity that is not usually captured in osteoporosis cost estimates. The total costs of osteoporosis are difficult to assess and are based on many assumptions. It is estimated that the total acute care costs attributable to osteoporosis in Canada (hospitalization, outpatient care, and drug therapy) approached \$1.3 billion in 1993.³

It is also well-known that the burden of illness associated with hip fracture extends beyond the initial hospitalization. The levels of health services used were assessed in a study of women aged 50 years and over who had been admitted to an acute care facility for hip fracture in the Hamilton-Wentworth region in Ontario from April 1, 1995 to March 31, 1996.¹⁴ The mean 1-year cost of hip fracture for the 504 study patients was \$26 527 (95% confidence interval [CI], \$24 564–\$28 490). One-year costs were significantly ($P < 0.001$) different for patients who returned to the community (mean = \$21 385), versus those who were transferred (mean = \$44 156) or readmitted (mean = \$33 729) to long-term care facilities. Initial hospitalization represented 58% of the 1-year cost for the community-dwelling patients, compared with 27% of the cost for the long-term care residents. Only 59.4% of the community-dwelling patients resided in the community 1 year following fracture, and 5.6% of patients who survived their first fracture experienced a subsequent hip fracture. Annual economic implications of hip fracture in Canada are \$650 million and are expected to rise to \$2.4 billion by 2041.¹⁴