

Osteoporosis: Care Gaps & Beyond

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One in four women over the age of 50 and one in eight men over the age of 50 suffers from osteoporosis. There are over 25,000 hip fractures per year in Canada and 70% of these are osteoporosis related. Mortality is approximately 20% higher within one year of a hip fracture. Fifty per cent of women who sustain a hip fracture do not return to their previous functional status and about 20% will require long-term care.

What's the current state of osteoporosis?

The breaking of a bone by an injury that would be insufficient to fracture normal bone, such as a fall from a standing height, is a low-trauma fracture called a fragility fracture. The main areas of concern are the wrist, humerus, ribs, vertebral body, pelvis and hip. So accepted are fragility fractures as part of our cultural norm that a woman who falls and suffers a Colles fracture is often not considered to have an underlying sinister process. Women with a marked kyphosis are often not assessed for vertebral compression fractures, which are often asymptomatic but very predictive of future fractures. One vertebral fracture increases the risk of a second vertebral fracture by 20%. Both vertebral and hip fractures are associated with increased morbidity and mortality.

Since Osteoporosis Canada (OSC) sponsored the 2002 Clinical Practice Guidelines for the Diagnosis and Management of Osteoporosis in Canada, it has become an evidenced-based yardstick that Canadian physicians can use to compare their patterns of osteoporosis care against the best recommended practices. Reviews of the

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literature suggest that Canadian women with post-menopausal osteoporosis, especially those at high risk of fracture, do not have a good chance of receiving a proper diagnosis, undergoing appropriate testing, or being offered medications that can reduce their risk of fracture.

Where does the gap lay?

A care gap is the measured difference between what is delivered as usual care and what would be expected with best practices. There is evidence of a care gap between the occurrence of a fragility fracture and the diagnosis and treatment of osteoporosis in Canada. The proportion of individuals with a fragility fracture who receive an osteoporosis diagnostic test or physician diagnosis range from 1.7% to 50%. Therapies, such as hormone replacement therapy, bisphosphonates or calcitonin, are being prescribed to between 5.2% and 37.5% of these high-risk patients. Calcium and vitamin D supplement intake is variable, and ranges from 2.8% to 61.6% of patients (Table 1).

There are many potential reasons why optimal care is not delivered by physicians to their patients who are at risk of fracturing due to osteoporosis. Physicians may have difficulty:

- Recognizing and remembering the key patient risk factors for osteoporosis when there are so many other risk factors for numerous conditions to think about;
- Remembering to ask the key assessment questions when there are numerous other assessment questions to consider;
- Ordering the proper investigations, including not over-investigating the pre-fracture patients and not under-investigating the elderly female patients who have already fractured, is unlikely to occur if a patient is not recognized as being at risk;
- Recommending evidenced-based therapies; this can be difficult if not already part of a practicing physician's considerations and approaches.

Table 1

Optimal therapies for osteoporosis (Calcium and vitamin D for all patients)

Without fragility fracture and with vasomotor symptoms:

- Hormone replacement therapy (HRT) is a first choice
- Alendronate, risedronate and raloxifene, calcitonin are second choices

Without fragility fracture and without vasomotor symptoms:

- Alendronate, risedronate or raloxifene are first choices
- Calcitonin, etidronate, HRT are second choices

With fragility fracture:

- Alendronate, risedronate or raloxifene are first choices
- Calcitonin, etidronate or HRT are second choices

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System factors include the degree of difficulty in accessing bone mineral densitometry in the patient's geographic area and varying provincial formulary restrictions on osteoporosis medications. Patient factors include poor adherence patterns when taking medication and their willingness or reluctance to participate in lifestyle changes that reduce the risk of falling and fracturing.

Table 2

Key risk factors

- > 65 years of age
- Fragility fracture after the age 40
- Family history, especially of a maternal hip fracture
- Bone mineral densitometry test score < -2.5

What should be practiced?

The family physician and general practitioner do not need to be osteoporosis experts. Preventing a first fracture is ideal, but recognizing that preventing subsequent fractures in the patient is also extremely important.

- ▶ Do not be nonchalant about wrist, hip or vertebrae fractures in your patients. Not all fractures are osteoporotic, but fragility fractures in women over 40 years of age should trigger suspicion of osteoporosis and merit a bone mineral density (BMD) test.
- ▶ High-risk patients can be identified from key risk factors (Table 2). Ask about a family history of fracturing—especially a maternal history of hip fracture. It is easy to add this question to your yearly check-up (or periodic health exam) routine.
- ▶ Fractures can be prevented. This includes assessing the need for both medication and fall-prevention.
- ▶ Recognize that any adult patient, male or female, who is taking corticosteroids (the equivalent of 5 mg to 7.5 mg of prednisone) for three months or longer should receive a bisphosphonate and a bone mineral density assessment.
- ▶ Track your patient's height. A documented (or prospective) height loss of 2 cm or a historical height loss of 6 cm should indicate the possibility of significant vertebral compression deformities. Two-thirds of vertebral compression fractures are asymptomatic, other than height loss or kyphosis. Ordering a lateral thoracic-lumbar vertebral X-ray with the written instructions, "rule out vertebral compression fractures," will help identify patients with osteoporosis.

Table 3

Major risk factors

- Vertebral compression fracture
- Systemic glucocorticoid therapy > three months
- Malabsorption syndrome
- Primary hyperparathyroidism
- Propensity to fall
- Osteopenia on X-ray
- Early menopause before age 45
- Hypogonadism

Table 4

Minor risk factors

- Rheumatoid arthritis
- Past history of clinical hyperthyroidism
- Chronic anticonvulsant therapy
- Weight < 57 kg
- Smoker
- Excess alcohol intake
- Excess caffeine intake
- Low dietary calcium intake
- Chronic heparin therapy

What can BMD do?

BMD testing helps further define your patient's risk for an osteoporotic fracture. The OSC Guidelines state that a patient with one major (Table 3), or two minor risk factors (Table 4) should be referred for BMD testing. Any one of the following key risk factors for fracture should generate a BMD assessment in women:

- a prior fragility fracture after the age of 40 years.
- a family history of a maternal hip fracture.
- over the age of 65 years.

If a BMD result is < -1.5 in the presence of one of these key risk factors, treatment, including pharmacotherapy, is indicated.

A BMD is indicated if a woman has one of the other major risk factors present, instead of a key risk factor. Treatment, including pharmacotherapy, should be considered if the T score is < -1.5.

Therapeutic management consists of both non-pharmacologic and pharmacologic therapy. Exercise and nutrition recommendations (Table 5) are strongly recommended in all patients at risk. The prevention of falls is an essential element, especially in the high-risk elderly. One study shows that hip protectors may play a role in the institutionalized elderly (with a number needed to treat [NNT] of 25) but there is insufficient evidence for their use in the lower-risk, community-dwelling seniors.


Adequate doses of calcium and vitamin D are the mainstays of prevention and treatment, though calcium and vitamin D on their own are not enough for patients at high risk. However, a recent meta-analysis shows that vitamin D reduces the rate of falling

Table 5

Nutrition

	Age	Daily intake
Calcium	Four to 8 years	800 mg
	Six to 18 years	1,300 mg
	Women 19 to 50	1,000 mg
	Men 19 to 50	1,000 mg
	Women > 50	1,500 mg
	Men > 50	1,500 mg
Vitamin D	Women & men 19 to 40	400 IU
	Women & men > 50	800 IU
Caffeine	Adult	≤ Four cups
Magnesium Copper Zinc Phosorus Manganese Iron Essential fatty acids		No evidence exists to recommend additional intake

in the elderly. In the meta-analysis, there were consistently fewer falls in participants given vitamin D, but the result was statistically significant in only one of the five trials analyzed. Combining the five trials, 37% of people had a fall in the control group, compared with 30% with vitamin D. The relative risk was 0.81 (0.69 to 0.94) with a NNT of 14 (8 to 51) to prevent one fall.

The optimal pharmacotherapy choice depends on the patient. Table 1 provides an outline of what the recommended first- and second-line choices are, given a patient's fracture history and vasomotor symptom history. 

Resources

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