No Bones About It:
The Osteoporosis Care Gap

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Osteoporosis affects one in four women and one in eight men in Canada. Some 40% of 50-year-old Caucasian women will suffer a fragility fracture in their remaining lifetime.[1]

- Hip and vertebral fractures are a problem for women in their 70s and 80s.
- Wrist fractures are a problem in the late 50s to early 70s.
- Other fractures (*e.g.* pelvic and ribs) are a problem throughout post-menopausal years.[1]

Owing, et al, reported on a cohort of 205 post-menopausal women from the Baltimore HIP enrolled between 1992 and 1995. The women had a mean age of 81 and > 87% were osteoporotic and met the National Osteoporosis Foundation criteria for receiving treatment.

However, < 10% were receiving bone-active medications at the time of the fracture and only 10% received bone-active medications in the year following the fracture.[2]

How do you know it's osteoporosis?

The World Health Organization defines osteoporosis as a bone mineral density (BMD) < 2.5 standard deviations below the mean for white adult women. The patient is assigned a T score of -2.5, which is the number of standard deviations below the mean. Normal BMD is between +2.5 and -1 on the dual-energy X-ray absorptiometry (DEXA). The same density of -2.5 in a woman who has suffered a fragility fracture (one caused by an injury insufficient to fracture normal bone) is defined as severe osteoporosis. Osteopoenia is associated with a T

Flora's Fall

Flora, 76, lives with her husband in a retirement community. They walk and swim daily, play bridge and belong to a play-reading group.

Last year, Flora broke her left hip when she slipped on a wet floor. She received proper orthopedic treatment for her fracture and was returned home to pursue her readaptation program.

Flora's medications include:

- metformin, 500 mg four times daily,
- glyburide, 5 mg twice daily,
- atenolol, 50 mg daily,
- ramipril, 10 mg daily,
- nifedipine XL 30 mg daily and
- rosuvastatine 20 mg daily.

She is also taking acetylsalicylic acid (ASA) prophylaxis, 325 mg daily, calcium, 500 mg, and Vitamin D, 400 IU daily.

Though Flora suffered a fragility fracture and her X-rays were consistent with a diagnosis of osteoporosis, considering her age and her multiple conditions and medications, she was not sent for bone density measurement and she was not given other bone active medications.

Is Flora an exceptional case? See page 78.

Osteoporosis affects 1 in 4 women, and 1 in 8 men in Canada.

Table 1

Risk factors for osteoporosis

Major factors

- Age > 65
- Vertebral compression fracture
- Fragility fracture after age 40
- Family history of osteoporotic fracture (especially maternal)
- Systemic glucocorticoid therapy lasting longer than 3 months
- Malabsorption syndrome
- Primary hyperparathyroidism
- Propensity to fall
- Osteopoenia on X-ray film
- Hypogonadism
- Early menopause (before age 45)

Minor factors

- Rheumatoid arthritis
- Low dietary calcium intake
- Chronic anticonvulsivant therapy
- Weight loss > 10% of weight at age 25
- Past history of clinical hyperthyroidism
- Smoking
- Excessive caffeine intake
- Weight < 57 kg
- Chronic heparin therapy

score of -1 and -2.5.[2]

BMD is used as proxy measure as it accounts for 70% of bone strength.

What should you know?

The Osteoporosis Society of Canada's (OSC) evidence-based guidelines recommend all women over 65 should undergo BMD testing. Post-menopausal women with one major or two minor clinical factors, as listed in Table 1, should also be screened.

The International Society for Clinical Densitometry recommends basic laboratory testing to exclude secondary causes.

The testing should include:

- complete blood count,
- creatinine,
- calcium,
- phosphate and
- albumin.

A 24-hour urine collection for hypercalciuria can be considered.

Figure 1 summarizes the recommendations of the OSC and treatment of osteoporosis. Post-menopausal women with a T score of -2.5 or a T score between -1 and -2.5 who have suffered a fragility fracture should receive treatment.

What do the studies say?

A recent meta-analysis of therapies concluded only alendronate and risedronate reduce the risk of both non-vertebral and vertebral fractures.[3]

More on Flora

Flora was given the proper education on her condition, on what could be done and on why it was important to do it. She is now on a weekly bisphosphonate.

Both alendronate and risedronate reduce the risk of vertebral and non-vertebral fractures. Alendronate has been proven effective in the treatment of osteoporosis in older women with diabetes. Flora also takes calcium, 500 mg and vitamin D, 400 IU, twice daily. She still walks and swims daily. When last seen, she had a leading role in her reading group's play, and in her treatment.

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Both have new weekly formulations, which are preferred by patients and may improve compliance. Importantly, alendronate has been shown to maintain and increase BMD in women who have discontinued hormonal replacement therapy (HRT).[4] This is important because based on the results of the Women's Health Initiative, hormone therapy is now reserved only for short-term use in women with vasomotor symptoms at menopause.

Preliminary results with ibandronate and zoledronate may modify the perspective of bisphosphonate treatments by offering less frequent dosing regimens.[5] Results at 10 years have recently been published with alendronate which confirm both long-term efficiency and safety.[6]

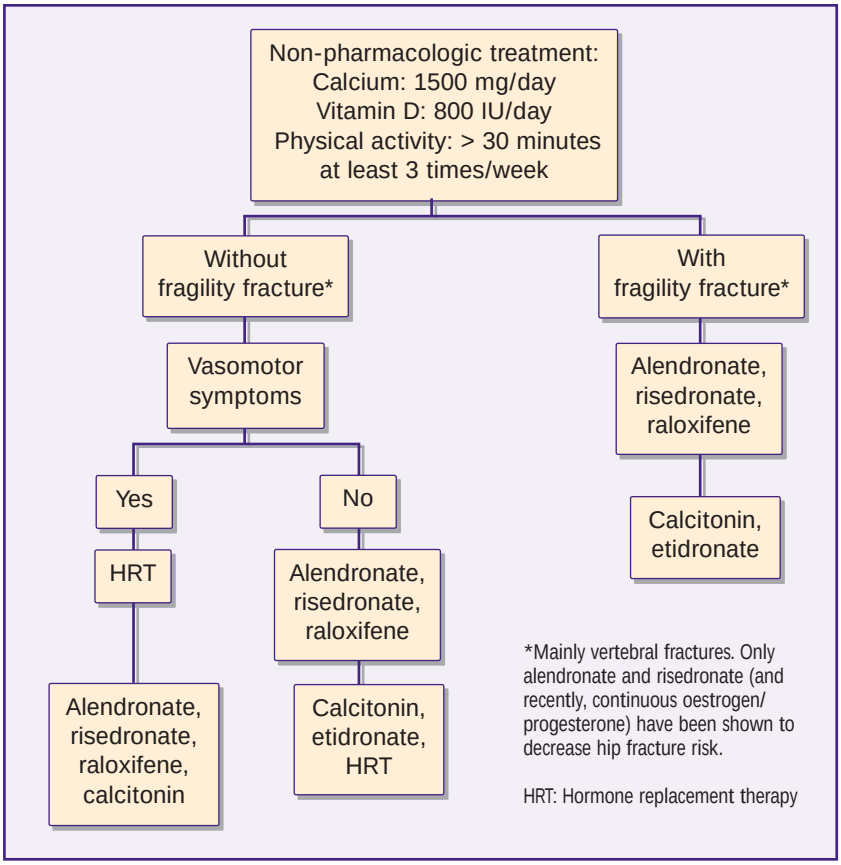

Figure 1. Optimal treatment for osteoporosis in post-menopausal women.

What should you try?

Two new agents have shown the ability to reduce the risk of fracture; the parathyroid fragment PTH (1-34) or teriparatide with a unique potent anabolic action on bone and strontium renalate, an inducer of uncoupling between resorption and formation.

Teriparatide has recently been approved in Canada. It is given by daily injections and the cost is about $26/day. PTH, for a limited duration, may be appropriate first-line therapy for women with severe osteoporosis with fractures. Otherwise, it should be considered second-line agent for those who have failed more established treatments.

Because most treatments lead to an increase in BMD of 1% to 6% over three years, followup DEXA should be done after two years of treatment.

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