

# Osteoporosis

*Our panel of specialists  
answers your questions*

# QA

**“An otherwise healthy postmenopausal woman with osteoporosis complies with her prescribed bisphosphonate, calcium and vitamin D therapy. Her one-year follow-up bone mineral densitometry reports ‘no significant change compared to last year.’ Is this an acceptable and sufficient result, or should we expect an actual increase in bone density (i.e. improved T-score)?”**

—Dr. Howard Rudner, Toronto, ON

**Dr. David Hanley answers:** In using bone densitometry to follow response to therapy, we should not be discouraged by “no significant change compared to last year,” if the patient is otherwise doing well. Although bone mineral density (BMD) measurement by dual energy X-ray absorptiometry (DXA) is highly accurate in diagnosing osteoporosis, the least amount of change that can be detected is 2-2.5% in the spine and 3-5% in the femoral neck. The BMD change we can expect with currently available therapies is often within the margin of error of the measurement, and is therefore reported as “no significant change.” The lumbar spine is much more likely to show a significant change than the hip.

For the vast majority of patients, BMD does not need to be performed annually. Two general points should be made concerning the approach recommended by the Osteoporosis Society of Canada (*Osteoporosis Update*, Summer 1999, Vol. 3, No. 3):

- Once a new osteoporosis therapy has been initiated, a follow-up BMD after one year could be used to make certain the patient is not losing bone at a rapid rate. If there is continued significant loss of bone while taking an approved effective therapy, the physician should consider secondary causes of osteoporosis, and make sure the patient is taking the therapy properly. Patients losing bone density at one year should have another BMD measurement one year later. If bone loss continues through two BMD measurements, therapy should

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probably be changed. If the patient's BMD shows no change or improvement, the next one could be done two to three years later, or when the treatment is being changed (to provide a new baseline measurement).

- Special circumstances, such as patients taking glucocorticoids, might require follow-up BMD measurements on a yearly basis.

When following changes in BMD, one should not use T-scores for comparison purposes. The manufacturers of BMD instruments can change their reference normal population, so that from year to year a T-score could alter significantly without any actual change in bone density. For comparing BMD measurements, it is important to look at the actual measured value (g/cm<sup>2</sup>).

We do not have the equivalent of a blood pressure cuff in following patients' response to osteoporosis therapies. Our main focus should be on adherence to therapy, rather than on improvement in BMD. Currently approved therapies slow down the process of bone remodeling and prevent bone resorption, resulting, at best, in modest gains in BMD. In the future, when bone-forming agents become available, more dramatic changes in BMD might be expected. But for now, we should advise our patients that the aim is to prevent fractures by reducing further bone loss.

**“In a patient with significant osteopenia at the perimenopausal stage, would it be reasonable to use raloxifene if hormone replacement therapy was contraindicated?”**

—An FP in Nelson, BC

**Dr. Altya Khan replies:** The perimenopause is defined as the time period immediately prior to menopause through to one year after the cessation of periods. During this time serum estrogen levels begin to fluctuate and decrease. The rate of bone loss before menopause is approximately 1% per year and can increase to 3-5% per year afterwards. Perimenopausal symptoms such as changes in the frequency and duration of cycles as well as the development of hot

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flashes and night sweats respond well to hormone replacement therapy (HRT). Estrogen replacement prevents the increase in bone resorption associated with estrogen deficiency and halts progressive bone loss for most women.

HRT is of significant benefit in the perimenopausal woman with osteopenia due to its effects on menopausal and urogenital symptoms. In individuals in whom HRT is contraindicated — such as in cases of unexplained vaginal bleeding prior to investigation, acute liver disease, active thromboembolic disease or previous history of thrombosis, risk of breast cancer recurrence — there is currently no approved alternative.

Raloxifene is only approved for postmenopausal women and should not be used before menopause. Bisphosphonates are also not recommended as front-line therapies in premenopausal women, with the exception of women being treated for steroid-induced osteoporosis.

In a perimenopausal female with significantly decreased bone density, it is important to complete a thorough history and physical. Supplement this with additional biochemical evaluation in order to exclude secondary causes of osteopenia or other factors which may have contributed to the decrease, especially since the condition is unusual in this group. ■

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**Feature article**

#### HOW IS THE CHECKLIST APPLIED?

To make the checklist useful, the risks have been categorized in the typical sequence of clinical evaluation. As each part of clinical assessment progresses for a patient, the related items on the checklist can be incorporated and evaluated. Any risk factor that is positive is checked off. If any one of the items in Column A of the checklist is positive for a patient, then that person should be sent for bone densitometry. Two positive findings in Column B similarly mean that the patient should undergo bone mass measurement.

If convenient, photocopy Table 1 and use it to evaluate individual patients as part of their routine clinical evaluation. The checklist can be administered in a modest amount of time, and it lends itself to inclusion in the periodic or annual health assessment.

#### BONE DENSITOMETRY

Ideally, clinical risk factors could be used by themselves to identify patients with osteoporosis. However, they simply do not have adequate accuracy.<sup>3-5</sup> Clinical risk factors help us identify individuals at risk of osteoporosis, but we must still rely upon the gold standard evaluation method of bone densitometry to make the definitive diagnosis in the absence of fragility fractures.

The most widely available and best-validated bone densitometry method is dual-energy X-ray absorptiometry (DXA). Any patients meeting the criteria defined in the checklist should be sent for DXA evaluation. DXA results form the basis for overall fracture risk evaluation of an individual patient and are crucial in determining the clinical approach, including choice of therapy and monitoring the efficacy of any interventions.<sup>4-6</sup>

#### RISK FACTOR ASSESSMENT IN OSTEOPOROSIS CARE

Over the last 10 years, we have witnessed a revolution in the field of osteoporosis. DXA has entered into widespread use, allowing us to find low bone density before it leads to broken bones. Our osteoporosis treatment armamentarium has expanded manifold and we now have excellent drug therapies that have been proven to reduce fracture occurrence.

As part of the paradigm shift that has occurred in the past decade, we now approach the identification of osteoporosis patients in a different way. Not so long ago, patients with osteoporosis were usually detected only after having experienced fractures, and they were often already suffering substantial impairment in quality of life. Our goal now is to identify people with osteoporosis either before they have fractured, or very early in the course of fracturing, when the disease has not yet compromised their health or enjoyment of life. Routine evaluation of key osteoporosis risk factors in individual patients is the cornerstone of this approach, through which we can expect to identify cases of osteoporosis at early stages. This allows us to work with the patient to institute lifestyle, nutritional and drug therapies that will significantly reduce the mortality and morbidity that accompanies untreated osteoporosis. ■

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