Osteoporosis Therapy: When Do We Start and Stop?

This department covers selected points from the 2007 Endocrine Update: A CME Day from the Division of Endocrinology and Metabolism at McMaster University and the University of Western Ontario.
Program Chairs: Aliya Khan, MD, FRCPC, FACP, FACE and Terri Paul, MD, MSc, FRCPC

D. Hanley, MD, FRCPC; and Nazir Khan

Osteoporosis is defined as a skeletal disorder characterized by compromised bone strength, predisposing a person to an increased risk of fracture. Bone strength reflects the integration of BMD and bone quality. Key risk factors for osteoporosis include:

- a prior fragility fracture (after age 40),
- low BMD,
- age,
- glucocorticoid use and
- family history of hip fractures.

Effective management strategies for osteoporosis include anti-catabolic agents (also called anti-resorptive agents) and anabolic (bone building) agents. Anti-catabolics include:

- bisphosphonates,
- selective estrogen receptor modulators (SERMs),
- hormone replacement therapy and
- calcitonin.

New agents in this category include RANK ligand inhibitors (*e.g.*, denosumab). These agents effectively reduce osteoclastic function and in turn, bone resorption. The only available anabolic agent is teriparatide (a parathyroid hormone peptide), which is especially useful for patients with severe osteoporosis. Strontium ranelate, which is probably a mixed anti-catabolic and anabolic agent, is currently under review by Health Canada.

Treatment of osteoporosis should be initiated when the absolute risk for fracture is high, based on BMD and age. If a prior fragility fracture has occurred, or the patient has been on long-term glucocorticoid therapy, therapy may be initiated irrespective of BMD.

There are no guidelines for stopping osteoporosis therapy. It appears the bisphosphonate alendronate can be stopped for a "drug holiday" after five years of treatment, if the risk of fracture is relatively low. For another bisphosphonate, risedronate, BMD seems to diminish relatively rapidly over the first one to two years after stopping. It is not recommended to stop treatment if the patient has had a previous fracture.

If a treatment is being taken properly, but fails to prevent recurrent fractures while BMD continues to decline, the patient should be evaluated for other medical causes for osteoporosis and consideration be given to changing therapy.

Mr. Khan is a Third Year Health Science Student at McMaster University, Hamilton, Ontario.

Dr. Hanley is an Professor, Depatments of Medicine, Community Health Sciences and Oncology Division of Endocrinology and Metabolism, University of Calgary Health Sciences Centre; and President, Canadian Society of Endocrinology and Metabolism, Calgary, Alberta.