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<p>Although a variety of medications are effective for the treatment of postmenopausal osteoporosis, there is concern that long-term use may incur side effects. Consequently, some have proposed discontinuing or temporarily suspending treatment after a defined period of time. As the benefits of fracture risk reduction may recede during this “drug holiday”, the clinician may be faced with deciding when to resume therapy (and with which agent) while avoiding the possible cumulative risk of side effects. This article summarizes data regarding length of treatment and the effects of cessation of treatment on bone density, bone turnover markers, and fracture risk.</p>	
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<p>Controversies regarding appropriate use of vitamin D and calcium are predominately related to the extraskeletal effects. Calcium and vitamin D are essential for bone health. The concerns regarding calcium and cardiovascular complications are inconclusive at best, and do not warrant a change in our approach to supplementation at this time. A growing body of literature exists suggesting that additional vitamin D may have numerous benefits, although more study needs to be done. Further prospective trials would provide insight into the potential advantages that increased vitamin D supplementation could provide.</p>	
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<p>As populations age, the number of osteoporotic fractures will increase. Bone mineral density (BMD) measurement remains the major way to</p>	

diagnose osteoporosis and to indicate therapy. The FRAX tool, based on clinical risk factors, estimates the 10-year risk of hip and major osteoporotic fractures. The association of BMD and FRAX measurements has improved the identification of patients who are most at risk. However, some patients can still be overlooked and denied therapy. It is sound that adding the measure of bone turnover markers to the former risk factors and their follow-up during therapy could best address the efficacy of treatment of osteoporosis. Whether this behavior is cost-effective remains to be settled.

Long-term Safety Concerns of Antiresorptive Therapy

387

Jie Zhang, Kenneth G. Saag, and Jeffrey R. Curtis

Bisphosphonates reduce the risk of major osteoporotic fractures and are the most commonly used medications for the prevention and treatment of osteoporosis. Although these medications are well tolerated and safe during large-scale clinical trials, several rare and serious adverse events are suspected to be associated with long-term bisphosphonate use. These adverse events include osteonecrosis of the jaw, atypical fractures, and esophageal cancer. This review summarizes studies examining the association between bisphosphonate use and these adverse outcomes, with a focus on large case series and controlled epidemiologic studies.

Osteoporosis in Men: Update 2011

401

Denise L. Orwig, Nancy Chiles, Mark Jones, and Marc C. Hochberg

During the past year several review articles have been published on the topic of osteoporosis in men. These reviews have highlighted recommendations for measuring bone mineral density (BMD) in older men as a means of screening for osteoporosis, use of the World Health Organization's Fracture Risk Assessment Tool for predicting the risk of hip and major osteoporotic fractures, frequency of secondary causes of osteoporosis, useful laboratory tests to evaluate these conditions, newer treatments for men with osteoporosis that increase BMD and may reduce the risk of fractures, and new data on the prevalence of low BMD and osteoporosis in men.

Update on Glucocorticoid-Induced Osteoporosis

415

Michael Maricic

Glucocorticoid-induced osteoporosis (GIOP) is the most common form of secondary osteoporosis, and fractures are the most frequent adverse effects of this medication. Glucocorticoids have several direct and indirect adverse effects on bone, primarily through reduction in osteoblasts and osteocyte activity, and life span. Recent advances in the pathophysiology and prevention of this complication of therapy provide hope for its amelioration in patients being treated with glucocorticoids. Several effective pharmacologic agents are now available, and guidelines for the prevention and treatment of GIOP have been published. Despite these advances, many patients still do not receive proper prevention or therapy.

The RANKL Pathway and Denosumab

433

Robin K. Dore

Denosumab (Prolia) is a fully human monoclonal antibody directed against receptor activator of nuclear factor- κ B ligand (RANKL), which interferes

with the formation, activation, and survival of osteoclasts. It was approved by the Food and Drug Administration in June 2010 as a new treatment for postmenopausal osteoporosis in women who are at high risk for fracture. Given its mechanism of action, it is an antiresorptive therapy that is administered as a 60-mg subcutaneous injection every 6 months. It is the first biologic antiresorptive therapy for osteoporosis, and the first osteoporosis therapy to show efficacy and safety in patients with renal impairment.

Assessment of Fracture Risk**453**

Sanford Baim

Osteoporosis-related fractures are associated with significant morbidity, mortality, and health care expenditure worldwide. The low sensitivity of bone density testing alone to predict fractures has led to the development of a variety of fracture assessment tools that use the combination of bone density and clinical risk factors to improve the prediction of low-trauma fractures. These fracture assessment tools quantitatively predict the 10-year probability of hip and major osteoporosis-related fractures, and can be used with various intervention strategies to effectively intervene with cost-effective therapies to prevent future fractures.

Teriparatide Update**471**

Stuart L. Silverman and Keaton Nasser

Teriparatide (TPD) is a novel anabolic agent that stimulates bone formation. TPD reduces risk of vertebral and nonvertebral fracture. Due to its positive effects on bone formation, many new uses of TPD are being explored. It has been studied and approved for glucocorticoid-induced osteoporosis. Many questions about the use of TPD remain including use of follow-up therapy, combination therapy, sequential therapy, and its potential role in fracture healing and treatment of back pain related to osteoporosis.

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