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Review Article

Osteoporosis Update From the 2012 Santa Fe Bone Symposium

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Abstract

The core of the 2012 Santa Fe Bone Symposium consisted of plenary presentations on new developments in the fields of osteoporosis and metabolic bone disease, with a focus on current and future implications for patient care. These were complemented by oral abstracts, interactive discussions of challenging cases, a debate on benefits and risks of long-term bisphosphonate therapy, and a panel discussion of controversial issues in the management of osteoporosis. Other topics included a review of the most important scientific publications in the past year, new and emerging therapy for osteoporosis, the benefits and limitations of clinical practice guidelines in the care of individual patients, the effects of metallic elements on skeletal health, clinical applications of bone turnover markers, an engineering perspective of skeletal health and disease, and an update on the role of the International Society for Clinical Densitometry in education, certification, accreditation, and advocacy for high-quality bone density testing. The symposium was highlighted by an inaugural presentation of ''2 Million 2 Many,'' a national campaign of the National Bone Health Alliance to increase awareness of osteoporosis.

Key Words: Controversy; guidelines; osteoporosis; safety; treatment.

Introduction

The Santa Fe Bone Symposium is a forum for state-of-the art presentations and discussions of new and emerging scientific, social, political, and economic issues involving osteoporosis and metabolic bone disease. Sponsored by the Osteoporosis Foundation of New Mexico, the symposium has been held each year since 2000, in Santa Fe, New Mexico, USA. The most recent symposium held on August 10 and 11, 2012, was attended by more than 200 clinicians, scientists, researchers, and technologists from throughout the United States and abroad.

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It included a launch of the ''2 Million 2 Many'' national osteoporosis awareness campaign sponsored by the National Bone Health Alliance (NBHA) *(1)*. This campaign aims to draw attention to the 2 million low-trauma fractures occurring each year in the United States and increase awareness of health care providers and the public that fractures are a sentinel event. A low-trauma fracture in an adult signals the presence of skeletal fragility and is predictive of future fractures. By drawing attention to this major public health issue, it is hoped that more patients at risk for fractures will be identified and treated.

The proceedings of previous Santa Fe Bone Symposia have been published *(2−7)*. Enduring medical educational materials with opportunities to receive credit for continuing medical education have been made available as printed and electronic newsletters *(8−10)*, with slides and audio recordings available online as well *(11−13)*. Faculty members of

the 2012 Santa Fe Bone Symposium (Fig. 1) were invited to submit summaries of the most important aspects of their presentations. This is a compilation of those reports.

Guidance on Guidelines: You Still Have to be a Doctor

Robert A. Adler, MD

Clinical practice guidelines are useful for the busy practicing clinician, particularly the generalist, because experts have distilled the vast scientific literature to produce lucid pathways for diagnosis and treatment. That, at least, is the theory. In practice, guidelines are imperfect because the studies on which they are based are often inadequate. Two recent guidelines were produced by very different means, addressing areas of osteoporosis in need of attention: osteoporosis in men and glucocorticoid-induced osteoporosis (GIOP).

The Endocrine Society has released male osteoporosis guidelines *(14)* based on a systematic literature search *(15)* plus a less formalized literature review by a panel of experts. Because there have been far fewer studies of osteoporosis in men than in women, the panel was compelled to suggest most aspects of evaluation and management rather than recommend them as recommendations would require a higher level of evidence (e.g., high-quality randomized placebo-controlled trials). Along with grading of evidence quality, the panel suggested that men at increased risk for osteoporosis undergo dual-energy X-ray absorptiometry (DXA) testing of the lumbar spine and hip (and 1/3 radius if spine or hip could not be interpreted). Lumbar spine and hip DXA were recommended; substitution with 1/3 radius could only be suggested. The panel suggested that age 70 yr and older was a risk fracture for fracture in men but that younger men with additional risk factors might be tested as well. History and physical examination as well as laboratory examination, such as serum chemistries, 25-hydroxyvitamin D level, and 24-h urine calcium, could only be suggested. Nonpharmacological treatments such as home safety, fall risk reduction, calcium intake, and vitamin D intake were suggested. Treatment was recommended for men 50 yr and older with a low-trauma hip or spine fracture, T-score of −2.5 or below, high risk of fracture based on low bone mineral density (BMD) and/or clinical risk factors for fracture, oral glucocorticoid therapy per American College of Rheumatology (ACR) guidelines (see in the later sections), or androgen deprivation therapy (ADT) for prostate cancer. US Food and Drug Administration (FDA)−approved medications were recommended.

Fig. 1. Faculty and moderators for the 2012 Santa Fe Bone Symposium in front of cast mountain. From left to right: Robert A. Adlert, MD; Marjorie M. Luckey, MD; Mary L. Bouxsein, PhD; E. Michael Lewiecki, MD; Robert Marcus, MD; Michael R. McClung, MD; Paul D. Miller, MD; S. Bobo Tanner, MD; and John P. Bilezikian, MD. In the background is cast mountain, a 12-foot-by-12-foot installation representing the 5500 osteoporosis-related fractures that occur daily in the United States. Cast mountain is a component of the 2 Million 2 Many campaign of the National Bone Health Alliance (NBHA), a public-private partnership with 42 member organizations. The NBHA joins the expertise and resources of many stakeholders in skeletal health care to promote bone health and prevent disease; improve diagnosis and treatment of bone disease; and enhance bone research, surveillance, and evaluation.

The medical evidence for developing osteoporosis treatment guidelines in men is limited, but unless new fracture surrogates are developed, it is unlikely that the quality of information will improve markedly. So, how should a male patient at risk for fracture be managed? DXA is a covered benefit for Medicare for a man who has already had a fracture, is on glucocorticoids, or has hyperparathyroidism. Despite the very high incidence of fracture in men on ADT *(16)*, DXA reimbursement for these men is problematic in the United States. Now that generic alendronate is inexpensive, a case could be made to simply treat the high-risk men, perhaps using the World Health Organization (WHO) fracture risk calculator (FRAX), with or without DXA, to estimate 10-yr fracture risk. This would be fine if bisphosphonates were without potential serious side effects. The practicing clinician must weigh all this in assessing the benefits and risks of no treatment vs treatment. Individualization of care is necessary. There are risk factors for fractures, such as falls and diabetes mellitus *(17)*, that are not captured by FRAX. The guidelines do not eliminate the importance of clinical judgment, but they help with the straightforward cases.

The ACR updated its GIOP guidelines *(18)* by using an expert panel to vote on treatment regimens based on FRAX and glucocorticoid dose. For postmenopausal women and men who are 50 yr and older, low-risk patients (10-yr risk of major osteoporotic fracture 10% or less), on less than 7.5 mg of prednisone daily can be managed without pharmacological therapy to reduce fracture risk; when the daily dose of prednisone is 7.5 mg or greater, a bisphosphonate (alendronate, risedronate, or zoledronic acid) is recommended. For medium-risk patients (10-yr risk of major osteoporotic fracture 10%−20%), alendronate or risedronate