Bisphosphonates' Relative-Risk Effect a Big Seller

MDs and patients reject osteoporosis therapy when benefits couched in terms of absolute risk reduction.

BY JANE NEFF ROLLINS
Contributing Writer

Los Angeles — Physicians and patients are likely to reject bisphosphonate therapy when treatment efficacy is expressed in terms of absolute risk reduction, as health literacy experts recommend, rather than relative risk reduction, Dr. Christine A. Sinsky reported at the annual meeting of the Society of General Internal Medicine.

A patient's decision to reject lifelong treatment for osteoporosis may have a negative impact on a practice's income if pay for performance is linked to compliance with clinical practice guidelines.

Those guidelines recommend the use of bisphosphonates to treat postmenopausal osteoporosis. Clinicians may deviate from these guidelines; some payers, however, link provider reimbursement for osteoporosis care to guideline adherence.

Practice guidelines, clinical trial reports, and direct to consumer advertising that recommend drug treatment for osteoporosis tend to cite relative risk reduction (RRR) when describing the benefits of therapy. Experts in health literacy, however, prefer to describe treatment benefits as absolute risk reduction (ARR), because RRR tends to overestimate risks when there is a low baseline frequency of a condition, such as hip fracture in osteoporosis. Data from the U.S. Preventive Services Task Force (USPSTF) suggest that after 5 years of treatment with bisphosphonates, the RRR for hip fracture is 35%, whereas the absolute risk of fracture in the at-risk population decreases from 3% to 2%, yield a 1% ARR (Ann. Int. Med. 2002;137:526-8).

"First, you have to get the doctors to understand the difference between RRR and ARR," stated Dr. Sinsky, an internist in private practice in Dubuque, Iowa. She illustrated these concepts for the physician audience with a 10 by 10 grid of 100 happy faces, with three (those destined for hip fracture regardless of treatment) colored red. If treatment prevents one hip fracture out of three (roughly what the USPSTF found), one red face turned blue. If the reference class includes only the three patients who would have gotten a fracture, regardless of treatment, then the RRR is 33.3%. If the reference class includes all 100 women at risk of fracture, the ARR is 1%.

The investigators hypothesized that both patient and provider willingness to try bisphosphonate therapy for osteoporosis would be significantly lower if the efficacy were presented as ARR rather than as RRR.

The investigators administered a 10-item questionnaire to 641 consecutive female patients (aged 50 years or older) and all general medicine physicians at one university-based practice and one community practice. To assess baseline compliance with clinical practice guidelines, physicians asked patients: "You have a bone density test that indicates osteoporosis. You have full drug coverage. Are you interested in treatment?" Providers were asked: "Your 65-year-old patient has a [dual-energy x-ray absorptiometry] scan that indicates osteoporosis. The patient has full drug coverage. Would you recommend treatment?" Other scenarios presented out-of-pocket costs to the patient ranging from 0% to 90%. Subsequent questions presented similar scenarios but with efficacy of treatment presented as either RRR or ARR.

When treatment benefit was presented as RRR, 86% of patients expressed interest, compared with 57% when benefit was expressed as ARR ($P < .005$). Similarly, physicians were significantly more likely to recommend osteoporosis treatment for their patients when treatment benefits were presented as RRR (97%) as opposed to ARR (53%) ($P < .005$).

Patients were told that the cost of bisphosphonate therapy is about $1,000 per year. When the scenario stated that insurance would cover the entire cost of treatment, 81% of patients wanted therapy. In contrast, if insurance would cover only 10% of the cost, 15% of patients wanted therapy ($P = .04$). Under scenarios in which patients had full coverage, 100% recommended therapy; in contrast, 61% recommended therapy when insurance covered only 10% ($P = .02$). The data support the investigators' original hypothesis.

The data suggest that better informed patients may choose to reject lifelong drug treatment for osteoporosis. ■

Heel Bone Ultrasound Predicts Risk Of Osteoporotic Fracture in Elderly

BY JANE NEFF ROLLINS
Contributing Writer

Los Angeles — A prediction rule combining five easily obtainable risk factors distinguishes with high sensitivity women at high risk of developing osteoporotic fractures within the next 3 years, Dr. Idris Guessous reported at the annual meeting of the Society of General Internal Medicine.

The Swiss Evaluation of the Methods of Measurement of Osteoporotic Fracture Risk (SEMOF) study was a 3-year, prospective, multicenter study (n = 623) that computed a prediction score using low heel ultrasound stiffness index (SI), older age, fracture history, recent fall, and missed chair test to predict subsequent development of osteoporotic hip fractures and other nonvertebral fractures.

The objective of the study was to compute a prediction rule to identify women at high risk of osteoporotic fracture in general, or a hip fracture in particular, within the next 3 years, said Dr. Guessous of the University Hospital of Lausanne, Switzerland.

The heel bone ultrasonometer (Lunar Corp., Madison, Wisc.) was chosen because it is simple, inexpensive, noninvasive, and transportable. Of 7,114 Swiss women who responded to a mailed request to participate, 6,174 women between 70 and 85 years old were enrolled. Exclusion criteria included previous hip fracture, bilateral hip replacement, renal failure, active cancer, and dementia. The investigators calculated the bone SI using quantitative ultrasound of the heel, broadband ultrasound attenuation, and the speed of sound as the input parameters. The SI is expressed as a percentage of the values obtained by the manufacturer in a young adult population. Osteoporotic fractures were defined as hip, wrist, or arm breaks that occurred spontaneously or secondary to falling from standing height or lower despite a low level of trauma.

The investigators included baseline characteristics (age, weight, height, body mass index), known risk factors for osteoporosis (fracture history, history of maternal hip fracture, current smoking habits, early menopause, surgical menopause), fall (history of recent fall, missed chair test), and SI as parameters to develop a score that would predict risk of osteoporotic fracture. The investigators then used bootstrap methods to evaluate the stability of the score, Dr. Guessous said.

Mean follow-up was 2.8 years (17,546 person-years). Five risk factors were independent, significant predictors of the incidence of osteoporotic fractures: age older than 75, SI greater than 78%, history of any prior fracture, history of a fall during the last 12 months, and missed chair test (not being able to rise from a chair three successive times without using one's arms).

The investigators assigned a score to each of the five significant predictors: age, up to 3; SI, up to 7.5; history of fall within past 12 months, 1.5; fracture history, 1; and positive chair test, 1. Thus, the maximum prediction score is 14 points. The cutoff score to discriminate women at high risk of fracture with 90% sensitivity is 4.5. With this cutoff, 1,464 women (23.7%) were considered at low risk of hip fracture (score less than 4.5), and 4,710 (76.3%) were considered at high risk (score at least 4.5).

Among these high risk women, 60 (1.3%) experienced an osteoporotic hip fracture. In contrast, 6 (0.4%) of the low-risk women experienced such a fracture.

The main limitation of this predictor rule is that at a sensitivity of 90%, the specificity was only 24%. Ideally, a predictor rule should have high specificity as well. In addition, women aged older than 85 years were not included, but there are few data showing that very elderly women benefit from osteoporosis treatment, Dr. Guessous said. ■

Eye Trabecular Bone Density In Immunobullous Disease

Park City, Utah — Patients with immunobullous disease who are on systemic glucocorticoids require monitoring for bone loss and supportive interventions to prevent drug-induced osteoporosis, Dr. Kim B. Yancey told physicians at a clinical dermatology seminar sponsored by Medicis.

Glucocorticoid-induced osteoporosis primarily affects trabecular bone, he said, labeling the problem as "especially prominent" in children, adolescents, and postmenopausal women. Other adverse effects include osteonecrosis, primarily in the hip, and impairment in bone growth. He described the underlying mechanism as biologic.

The standard glucocorticoid therapy for patients with autoimmune blistering diseases starts at 1 mg/kg per day of oral prednisone. For patients requiring more aggressive treatment, Dr. Yancy, chairman of dermatology and codirector of the cutaneous immunopathology laboratory at the Medical College of Wisconsin in Milwaukee, recommended higher doses of oral prednisone plus 1 g/day of pulse methylprednisolone for 3-5 days.

Pemphigus and pemphigoid patients starting on long-term steroids should also be instructed to take 1,200-1,500 mg of elemental calcium daily and 400 IU of vitamin D twice a day. He recommended a low-sodium diet as well.

Later, after patients have started to benefit from the regimen, he advocated prescribing bisphosphonates and encouraging patients to do simple weight-bearing exercises.

"The main thing is to try to get patients to walk," which is easier when they are not in severe pain, he said.

Dr. Yancey noted that taking medications associated with low bone mass or bone loss is an indication for bone mineral absorptiometry. He recommended ordering this test of bone density at baseline and 1 year.

For patients who have a notable history of renal stones or otherwise need to have urinary calcium levels monitored, he advocated calling in a consultant. He also suggested requesting a consultation in decisions regarding sex hormone replacement therapy (HRT) for men or women, thiazide diuretics, and calcitonin in patients who do not tolerate bisphosphonates or who have pain from compression fractures. When prescribing corticosteroids, physicians should also consider drug interactions. Some agents, such as azole antifungals and macrolide antibiotics, increase corticosteroid levels and toxicity.

—Jane Salodof MacNeil