Age, BMI Particularly Vital

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ued. "So it's time for a change."

The new WHO report, which Dr. Petak hopes will be issued early in 2007, is likely to identify National Health and Nutrition Examination Survey (NHANES III) female Caucasian patient femoral neck T-scores by dual-energy X-ray absorptiometry (DXA) as the reference standard site to check for fracture risk.

But the new report is also likely to take into account other risk factors such as age, body mass index (BMI), previous low-trauma fracture, current tobacco use, rheumatoid arthritis, alcohol consumption above 2 units a day, parental history of hip fracture, and glucocorticoid use.

Studies have shown that age and body mass index are particularly important independent risk factors for fracture.

In a large longitudinal study, the 10-year probability of a hip fracture increased with age from 2% for 50-year-olds to 13% for 70-year-olds, even though all patients had a T-score of –2.5 (Osteoporosis Int. 2004;15:20-6).

Body mass index is such an important risk factor that it may substitute for DXA in countries where DXA is not available. The densitometric definition of osteoporosis in the 1994 WHO criteria established a T-score of –1.0 and above as normal, –1.0 to –2.5 as osteopenia, –2.5 and below as osteoporosis, and –2.5 and below with a fragility fracture as "severe" or "established" osteoporosis.

The new World Health Organization model would not change the diagnostic classification of osteoporosis issued by the International Society for Clinical Densitometry (ISCD) 2005 Position Development Conference for countries following the ISCD standards. However, it does distinguish between the diagnostic and interventional thresholds.

Each country can set its own fracture risk threshold, taking economic factors into consideration; countries with fewer resources are expected to set higher thresholds.

The analysis of economic resources will probably use the assumption of a 50% fracture reduction after pharmacologic treatment, said Dr. Petak, of the Texas Institute for Reproductive Medicine and Endocrinology in Houston.

The term osteopenia will no longer be relevant, because osteopenia refers to patients with a wide range of fracture risk and the term is often frightening to patients, he said. Until the WHO model is integrated into patient care, the term "low bone mass" is preferable to "osteopenia."

Limitations of the new guidelines include the fact that they use femoral neck T-scores rather than scores from other skeletal sites, they do not address secondary osteoporosis, and they also do not determine what interventions are necessary or if medications are the right intervention, according to Dr. Petak.

The National Osteoporosis Foundation and the American Association of Clinical Endocrinologists are likely to be the organizations that will help implement the new criteria in the United States, once they both receive the final WHO materials. ■

Periodic Ibandronate Injections Improve Bone Density at 2 Years

BY KERRI WACHTER
Senior Writer

PHILADELPHIA — Intermittent intravenous injections of ibandronate continue to improve bone mineral density of the spine and hip at 2 years, according to data that were presented at the annual meeting of the American Society for Bone and Mineral Research.

The 2-year results from the Dosing IntraVenous Administration (DIVA) study show that IV ibandronate injections every 2 or 3 months were superior to oral daily ibandronate (Boniva) in terms of increased bone mineral density (BMD) at the lumbar spine. The periodic IV injections were also superior to oral daily ibandronate at 1 and 2 years in terms of increased BMD for the total hip, femoral neck, and trochanter.

"IV ibandronate injections improve BMD at the spine and the hip [and] they produce superior BMD gains to oral dosing," said Dr. E. Michael Lewiecki, who is both the osteoporosis director of the New Mexico Clinical Research and Osteoporosis Center and also a professor of medicine at the University of New Mexico in Albuquerque.

The study was funded in part by F. Hoffman-La Roche Ltd. as well as by Glaxo-SmithKline. Dr. Lewiecki disclosed that he has received research grants from both of those companies.

DIVA was a randomized, double-blind, active-control study involving women aged 55-80 years, who were at least 5 years postmenopausal and who had a lumbar spine T score less than –2.5.

Overall 1,395 women were randomized to receive 2-mg IV ibandronate injections every 2 months (454 women), 3 mg IV ibandronate every 3 months (472 women), or 2.5 mg daily oral ibandronate (469 women).

All of the women also received daily calcium (500 mg) and vitamin D (400 IU) supplements.

The study's primary end point was mean percent change from baseline in lumbar spine BMD at 1 year, and these results were presented at the 2005 annual meeting of the American College of Rheumatology.

The secondary end points of the study included mean percent change from baseline in lumbar spine BMD at 2 years, and mean percent change from baseline in total hip, femoral neck, and trochanter BMD at 1 and 2 years.

In early 2006, the Food and Drug Administration approved the 3-mg trimonthly ibandronate IV injection for the treatment of postmenopausal osteoporosis.

"These data support the use of the every-3-month regimen in clinical practice," Dr. Lewiecki said. ■

Mean Percentage Increase From Baseline in BMD With Ibandronate

	Daily oral (n = 469)	Bimonthly injection (n = 454)	Trimonthly injection (n = 472)
Lumbar Spine			
Year 1	3.8	5.1	4.8
Year 2	4.8	6.4	6.3
Total Hip			
Year 1	1.8	2.5	2.4
Year 2	2.2	3.4	3.1
Femoral Neck			
Year 1	1.6	2.0	2.3
Year 2	2.2	2.7	2.8
Trochanter			
Year 1	3.0	4.0	3.8
Year 2	3.5	5.0	4.9

Source: Dr. Lewiecki

Risk of Falling Is Higher in Older Men With Low Testosterone

BY MARY ANN MOON
Contributing Writer

Older men who have low testosterone levels are at substantially higher risk of falling than are their peers who have normal or high levels, reported Dr. Eric Orwoll and his associates in the Osteoporotic Fractures in Men study, which is known as MrOS.

Several of the factors associated with increased risk of falling—including reduced muscle mass, decreased muscle strength, and decreased physical performance—are thought to be linked to age-related declines in androgen levels, but "no prospective data document this association," Dr. Orwoll, of Oregon Health and Science University, Portland, and his associates said in the Oct. 23 issue of the Archives of Internal Medicine.

They examined the issue using data from the MrOS study, a multicenter community-based cohort study of approximately 6,000 men aged 65 and older that was designed to identify risk factors for falls and fractures.

A subgroup of 2,623 subjects who were followed at 4-month intervals for a mean of 4 years formed the basis of the study. The mean age was 73 years, and most of the participants rated their general health as good to excellent.

Even when muscle strength and physical function were statistically controlled for, the effect of testosterone level on fall risk was unchanged.

Falls were very common, with 56% of the men reporting at least one fall over the course of follow-up. Falls were more common at older ages, with more than 20% of the men over age 80 reporting that they had fallen five times or more, compared with only 10% of men aged 65-69 years.

The risk of falling increased in men with declining levels of bioavailable testosterone.

"Fall risk in men in the lowest quartile of baseline bioavailable testosterone concentration was more than 40% greater than that in men in the highest quartile, [both] before and after adjustment for physical performance," Dr. Orwoll and his associates noted (Arch. Intern. Med. 2006;166: 2124-31).

When they repeated their analysis using data on only the healthiest subjects, this association did not change.

Men with lower testosterone levels also were at higher risk for multiple falls (more than 2 per year).

The risk of falls was also greater in men who had reduced levels of muscle strength or physical function.

However, when these factors were statistically controlled for, the effect of testosterone level on fall risk was unchanged. This demonstrates that the association between testosterone level and fall risk is strong regardless of the subject's physical performance and muscle strength.

"There may be other androgen-dependent mechanisms that contribute to the causation of falling," such as testosterone's effects on visual performance, cognition, or neuromuscular coordination, the investigators noted.

Given that their large study population was geographically and racially diverse, the study findings "are likely to be broadly applicable to similarly aged, generally healthy U.S. men," the researchers pointed out.

"These results provide additional justification for trials of testosterone supplementation in older men," Dr. Orwoll and his associates said. ■