

# Vertebral Fracture Assessment Helps Target Tx

BY KERRI WACHTER  
Senior Writer

NEW ORLEANS — Patients with vertebral fractures have a four- to fivefold higher risk for subsequent fragility fractures and should be targeted for aggressive therapy, Michael McClung, M.D., said at the annual meeting of the International Society for Clinical Densitometry.

“The combination of bone density testing and vertebral fracture assessment is a powerful

McClung of the Oregon Osteoporosis Center in Portland.

Both the severity and number of existing vertebral fractures are the best predictors of future vertebral fracture risk, regardless of bone density.

Payers are also starting to appreciate the benefit of assessing patients for such fractures. Medicare has agreed to reimburse physicians for vertebral fracture assessment (VFA) based on the new CPT code, 76077. Reimbursement is set at \$43 and

VFA criteria at its position development conference later this year in Vancouver, B.C.

VFA is conducted using dual-energy x-ray absorptiometry and has a number of advantages that make it an attractive marker for evaluating an individual's future fracture risk. It's an in-office procedure, and the radiation dose required for VFA is substantially lower than for conventional radiographs. The whole spine is pictured in one image, not in a series, making it easier to read. The images are also digitized which allows for magnification and other image manipulation. The images can be archived and reviewed side by side with images from follow-up examinations.

The main drawback is that VFA resolution is lower than for conventional radiographs. In particular, the upper spine is harder to visualize because of artifacts related to the lungs and ribs.

VFA should be considered for:

- ▶ Women aged 65 years or older.
- ▶ Men aged 70 years or older.
- ▶ Patients with known height loss of at least 1.5 inches.
- ▶ Patients with a clinical history or nonradiologic assessment findings suggestive of vertebral fracture.

▶ Patients with bone density evidence of osteoporosis at the hip or spine.

▶ Patients with kyphosis on physical examination.

▶ Patients on long-term glucocorticoid therapy.

VFA is contraindicated during pregnancy. Nor is it recommended for the patient with recent spine x-ray for whom nothing has changed clinically.

As a rule, consider whether the diagnosis of vertebral fractures would alter the course of therapy, Dr. McClung said. VFA is not necessary in cases where the results wouldn't change the course of therapy. ■

## Tips for Performing VFA

In performing VFA, the Genant semiquantitative method (see other box) provides a visual reference for grading fracture types (wedge, biconcave, or crush) and severity (mild, moderate, and severe).

Wedge compression fractures are more likely to occur in the thoracic spine, while biconcave fractures are more likely to occur in the lumbar spine, Dr. McClung said.

Unless the resolution of the scan is very good, be cautious about diagnosing mild or grade 1 fractures using VFA alone, he added. This is particularly true of wedge fractures of the thoracic spine and biconcave fractures of the lumbar spine. But the technique is very good for identifying grades 2 and 3 fractures, which have more clinical significance.

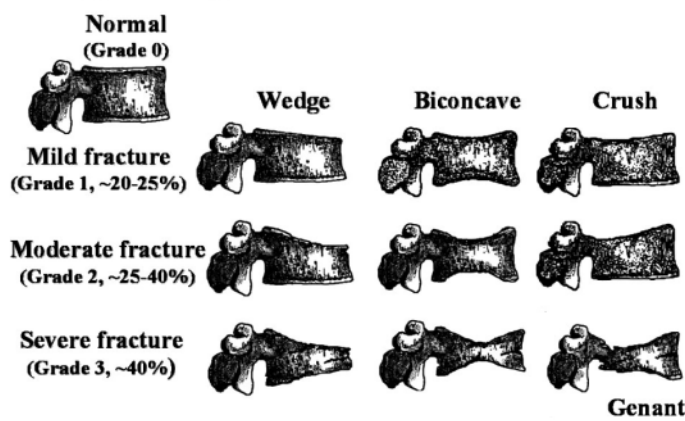
There are a number of conditions that make it difficult to interpret VFA findings, includ-

ing severe scoliosis, motion, rib/scapular shadows, bowel gas, and calcifications. Dr. McClung advises against making the diagnosis of osteoporotic fracture until the differential diagnoses are considered and the fracture cause identified.

In the event of uncertainty, “remember that this is not an x-ray and it's not meant to take the place of an x-ray. This is a very convenient way to make an assessment of vertebral deformity but we should not be reluctant, ashamed, or put off by saying ‘I don't know what I see,’” he said.

If there's a question, get more information. Follow up with x-ray when there is an equivocal fracture; if vertebrae (T6-L4) are unidentifiable; if there are confounding factors or artifacts; or there are osteosclerotic, lytic, or suspect deformities. Also, get an x-ray if there are unspecified soft tissue or bone abnormalities.

## Semiquantitative visual grading of vertebral fractures



The visual VFA reference above was developed by Harry Genant, M.D., of the University of California, San Francisco.

combination as we attempt to stratify patients into those at very high risk who would clearly benefit from treatment,” added Dr.

a referring physician must order the test. The International Society for Clinical Densitometry plans to take up the subject of

## BMD Predicts Fracture Risk in Men as Accurately as in Women

BY TIMOTHY F. KIRN  
Sacramento Bureau

SEATTLE — Bone mineral density measurements are equally good predictors of fracture risk in men and in women, even though men have a lower fracture risk, according to a 3-year study of almost 6,000 older men.

Previous studies have shown that bone mineral density (BMD) measurement predicts risk of fracture in women, but until now it has not been confirmed that the same is true for men, said Peggy M. Cawthon at the annual meeting of the American Society for Bone and Mineral Research.

The Osteoporotic Fractures in Men study found that men with osteoporosis had a 10-fold greater risk of non-spine fracture and a 100-fold greater risk of hip fracture, compared with men with normal BMD, said Ms. Cawthon, of the Research Institute, California Pacific Medical Center, San Francisco.

In the study, spine and hip BMD were measured in the men, whose average age was 74 years. Over the course of the study, there were 211 total non-spine fractures, 21 in the 104 men with osteoporosis, and 39

hip fractures, 10 in those with osteoporosis.

When the subjects were divided into quartiles based on their bone mineral density T scores, fracture rates increased as quartile decreased such that men in the lowest quartile of T score for the total hip had four times the risk of hip fracture of those in the highest quartile. The average T score for the cohort was -0.58.

Total hip density was a stronger predictor of hip fracture than was spine density, and femoral neck density, spine density, and total hip density were all similarly predictive of total non-spine fractures.

The correlations showed that the relative risk of hip fracture increased by 3.6 times with each lower, total hip T score standard deviation, Ms. Cawthon said. The relative risk of any fracture increased 1.8 times for each standard deviation of total hip T score.

In women, the relative risk of hip fracture and any non-spine fracture increases 2.6 times and 1.5 times, respectively, for each lower standard deviation. A comparison of the rate of fracture for any T score in this study with the rate of fracture in a similar study of women indicates a much higher rate of fracture in women, she added. ■

## Nearly Half of Sickle Cell Anemia Patients Have Weakened Bones

BY DOUG BRUNK  
San Diego Bureau

SAN DIEGO — Nearly half of adults with sickle cell anemia have osteopenia, according to results from a small study.

Although the exact cause of the association remains unclear, “iron overloading from blood transfusion may be a relevant contributing factor, as liver iron was significantly greater in osteopenic than nonosteopenic patients,” Farrukh T. Shah, M.D., said in a poster session at the annual meeting of the American Society of Hematology.

Other potential contributory mechanisms based on previous clinical research include marrow expansion, bone infarction, delayed puberty from anemia, low vitamin D levels, iron chelation therapy, and hypogonadism.

The investigators performed dual-energy x-ray absorptiometry (DEXA) scans on 10 female and 7 male consecutive sickle cell disease patients who had been transfused or were currently on a transfusion program. They also assessed hypogonadism, vitamin D<sub>3</sub>, parathyroid hormone, serum ferritin,

and hemoglobin levels, said Dr. Shah of the department of hematology at Whittington Hospital NHS Trust, London.

Among females in the study, six had osteopenia or osteoporosis in the spine; four had significant demineralization of the hip (two osteoporotic, two osteopenic).

Liver iron concentrations were higher among osteopenic females than their nonosteopenic counterparts; the levels of serum estradiol were not different between the two groups. No differences were seen between the two groups in terms of ferritin, units of blood transfused, parathyroid hormone, or vitamin D.

Among males, two had spinal osteopenia but none had osteopenia of the hip. Liver iron levels and serum ferritin levels were higher in the osteopenic males than in the nonosteopenic males. No differences were noted between the two groups in terms of serum testosterone, units of blood transfused, parathyroid hormone, or vitamin D.

Overall, 47% of the study participants had osteopenia, Dr. Shah said. ■