The visual VFA reference above was developed by Harry Genant, in the 104 men with osteoporosis, and 39 was 74 years. Over the course of the study, found that men with osteoporosis had a 100-fold greater risk of hip fracture, compared with men with normal BMD, said Mr. Genant, 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-vertebral fractures, 21 in the 104 men with osteoporosis, and 39 hip fractures, 10 in those with osteoporosis. 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 spine density, 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 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. As a rule, consider whether the diagnosis of vertebral fractures would alter the course of therapy, Dr. McClung said. VFA is not necessary with recent spine x-ray for whom nothing has changed clinically.

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

**Semi-quantitative visual grading of vertebral fractures**

<table>
<thead>
<tr>
<th>Normal (Grade 0)</th>
<th>Wedge</th>
<th>Bioconcave</th>
<th>Crush</th>
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<tbody>
<tr>
<td>Moderate fracture (Grade 1, 20–25%)</td>
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<tr>
<td>Severe fracture (Grade 3, 40%)</td>
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The visual VFA reference above was developed by Harry Genant, M.D., of the University of California, San Francisco.

**Tips for Performing VFA**

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

Wedge compression fractures are more likely to occur in the thoracic spine, while bioconcave 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 that fracture risk 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, including 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 an x-ray when there is an equivocal fracture; if vertebral (T6-L4) are undetectable; if there are confounding factors or artifacts; or there are osseolytic, lytic, or suspect deformities. Also, get an x-ray if there are unexplained soft tissue or bone abnormalities.

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

**BY TIMOTHY F. KIRN** Sacramento Bureau

**SAN DIEGO —** Bone mineral density measurements are equally good predictors of fracture risk in men and 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-vertebral 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 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 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. As a rule, consider whether the diagnosis of vertebral fractures would alter the course of therapy, Dr. McClung said. VFA is not necessary with recent spine x-ray for whom nothing has changed clinically.

**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 patients,” Farrukh T. Shah, M.D., said in a poster session at the annual meeting of the American Society of Hematology.

Other potential contributor 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 energy x-ray absorptiometry (DXA) 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 D₃, 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 or osteoporosis in the hip. Liver iron levels and serum ferritin levels were higher in the osteopenic males than in their 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.