Know Whether to Watch or Refer Spinal Concerns

BY DAMIAN McNAMARA
Miami Bureau

MIAMI — Pediatric back pain is rarely serious unless it persists or impairs daily functioning, Dr. Harry L. Shufflebarger said, and most cases of postural roundback are not of grave concern and will resolve over time, despite some significant parental anxiety.

Trunk asymmetry, or scoliosis, is managed according to severity, he said at a pediatric update sponsored by Miami Children's Hospital.

Avoid labeling pediatric patients with the "S word" until a definitive diagnosis is made, said Dr. Shufflebarger, chief of the division of spinal surgery at the hospital.

Back pain is common among pediatric patients. Approximately 10% of children under 10 years will complain of back pain, and about 50% of adolescents.

Approximately 80%-90% will have no identifiable organic etiology for their pain, even after an extensive workup, he said. "In the absence of stiffness, loss of appetite, energy change, apathy, or obvious illness, back pain is unlikely to be anything significant."

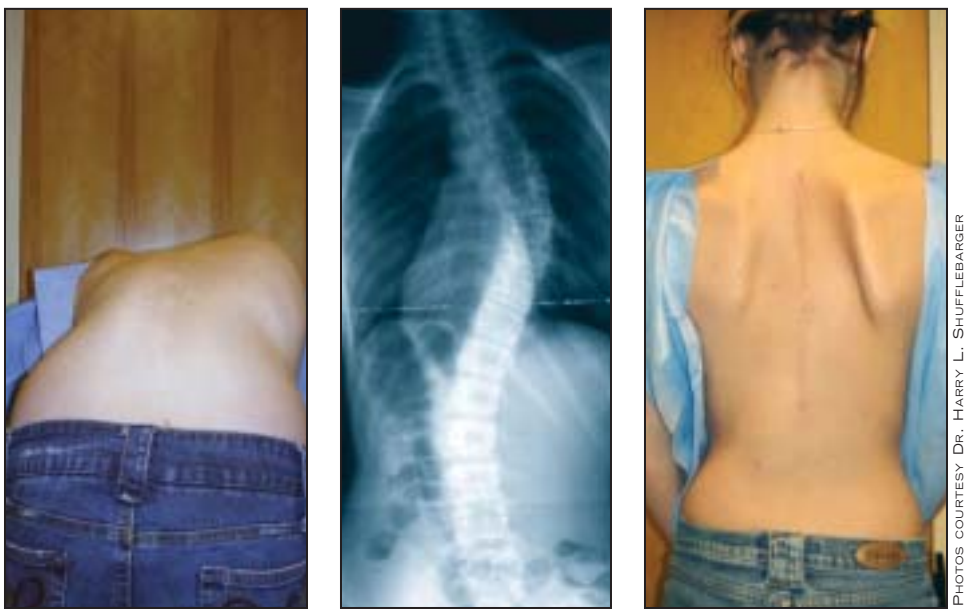
However, if back pain persists more than 3 months, it warrants further evaluation. Also be concerned if the pain is tied to a deformity, if it is rated significant by the patient or parent, if it wakes a patient at night, and/or if it interferes with function during school or social activities.

If an x-ray is negative, Dr. Shufflebarger suggested a second image with either a 3-phase technetium scan or a single-photo emission computed tomography scan.

A postural or asthenic roundback—also called a "hunchback"—is a frequent parental complaint, Dr. Shufflebarger said. "The best treatment is reassurance of parents that this is not a structural problem of the back and most children will outgrow it."

A prone, voluntary hyperextension test can differentiate postural from structural kyphosis. An inability to flatten the thoracic kyphosis might point to structural kyphosis or Scheuermann's kyphosis, Dr. Shufflebarger said. More severe kyphosis curvature, 50 degrees or more, might require bracing or surgery, he added.

Scoliosis is a general term for multiple etiologies. It can be idiopathic, congenital, neuromuscular, or other (such as neurofibromatosis). Clinicians can assess trunk asymmetry with the Adams forward bend test and/or a scoliometer and radiographs. If the bend test is positive, order a spinal x-ray, Dr. Shufflebarger said. "But radiology reports are not always reliable, so review the images."



Photos courtesy Dr. Harry L. Shufflebarger

The Adams forward bend test can be used to assess asymmetry (left). The patient's x-ray confirms the extent of spinal curvature, also shown corrected post surgery.

Scoliosis is confirmed with an erect radiograph that shows a curve greater than 10 degrees and when the scoliometer test shows trunk asymmetry over 5 degrees.

Idiopathic scoliosis can be juvenile onset (4-10 years) or adolescent (over 10 years). About 3%-4% of seventh graders will test positive on school screening, with 1%-2% having true scoliosis.

Most children and adolescents referred to a specialist for further evaluation can wait, but some should not, Dr. Shufflebarger said. Risk of progression is the primary concern with idiopathic scoliosis in children. Patients with more growth potential are at higher risk of quick progression, including children at a Tanner stage less than 3, those who are premenarche, and children with open triradiate cartilages. A more expeditious consult with a specialist might be warranted if the angle of trunk rotation is greater than 10-12 degrees, he added.

The gender distribution of small curves (less than 20 degrees) will be 2:1 girls to boys.

Observation, bracing, and surgery are the scoliosis management options. Observation is generally recommended for curves less than 25 degrees. With these, a specialist should repeat an x-ray in 3-4 months to monitor for any progression, he said.

"Bracing is suggested for children and adolescents with curves of 25 degrees or greater or an observed 10-degree curvature change," Dr. Shufflebarger said. "A custom-made underarm orthosis has to be worn 20 hours per day. It is effective for 60%-70% of patients. Brace failure is therefore 30%-40%."

Surgery is usually indicated for patients with curves greater than 40 degrees, he said. "Rarely are these urgent referrals, and the risks of surgery are rare." ■

Teriparatide Boosts Bone Density in Secondary Osteoporosis

BY KERRI WACHTER
Senior Writer

WASHINGTON — Teriparatide appeared effective in raising lumbar spine bone mineral density, and showed promise in reducing nonvertebral fractures in patients on glucocorticoid therapy with low bone mineral density or a prior fragility fracture, according to data presented at an international symposium sponsored by the National Osteoporosis Foundation.

"In patients with glucocorticoid-induced osteoporosis treated with teriparatide or alendronate for 18 months, teriparatide resulted in significantly greater increases in lumbar spine bone mineral density (BMD) compared with alendronate. Significantly fewer patients had new vertebral fractures with teriparatide, compared with the alendronate group," said Margaret R. Warner, Ph.D., a researcher with Eli Lilly & Co., which funded this trial.

At 18 months, lumbar spine BMD rose 7.2% for patients treated with teriparatide and 3.4% for those treated with alendronate. Differences could be seen between the two groups as early as 6 months.

Teriparatide (Forteo), made by Eli Lilly, contains recombinant human parathyroid hormone (1-34). It is currently indicated for the treatment of postmenopausal women with osteoporosis who are at high risk for fracture and to increase bone mass in men with primary or hypogonadal osteoporosis who are at high risk for fracture. Teriparatide is the only osteoporosis drug shown to stimulate new bone growth.

New Fractures in Patients With Prior Fragility Fractures

Type of Fracture	Teriparatide (n = 214)	Alendronate (n = 214)
Clinical vertebral	0%	1.4%
Radiographic vertebral	0.6%	9.5%
Nonfragility	2.3%	1.4%
Nonvertebral	5.6%	3.7%

Source: Dr. Warner

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Glucocorticoid therapy is the most common cause of secondary osteoporosis. Only risedronate (Actonel, by Procter & Gamble Pharmaceuticals) and alendronate (Fosamax, by Merck & Co.) are indicated for the prevention and treatment of glucocorticoid-induced osteoporosis in men and women receiving glucocorticoids in a daily dosage equal to 7.5 mg or more of prednisone with low BMD.

The trial included men and women at least 21 years old who had taken a minimum dose of 5 mg/day of prednisone (or its equivalent) for 3 months or longer prior to screening. All patients had total hip, femoral neck, or lumbar spine T scores of at most –2.0 or at most –1.0 with a prior fragility fracture. A total of 428 patients (80% women) were randomized to receive 20 mcg/day teriparatide injection and an oral placebo tablet or 10 mg/day oral alendronate and an injectable placebo. All received calcium and vitamin D supplements and were followed for 18 months.

The primary end point was the effect of teriparatide on lumbar spine BMD in patients with glucocorticoid-induced osteoporosis versus alendronate. The researchers also looked at the effect of teriparatide versus alendronate on total hip and femoral neck BMD, on markers of bone turnover, and on the incidence of vertebral and nonvertebral fractures. In addition, markers of bone turnover were analyzed in roughly half of each group. Adverse event data were collected throughout.

At baseline, both groups were fairly evenly matched in terms of gender, race, age, average prednisone dose, and average duration of prednisone use. Both groups were evenly matched in terms of average BMD at the total hip, femoral neck, and lumbar spine, and vertebral and nonvertebral fractures. Three-quarters of the patients in both groups had rheumatologic disease, with rheumatoid arthritis accounting for 69% of disease in the alendronate group and 61% in the teriparatide group.

Total hip BMD rose 3.6% for the teriparatide group, versus 2.2% for the alendronate group. Femoral neck BMD rose 3.7% for the teriparatide group, versus 2.1% for the alendronate group.

In terms of biomarkers of bone turnover, the study measured serum procollagen type 1 N-propeptide (P1NP)—a marker of bone formation—and serum C-terminal telopeptide of type 1 collagen (CTX)—a marker of bone resorption. "In the teriparatide group, there were increases in serum P1NP and CTX, whereas with the antiresorptive agent there were decreases in serum P1NP and CTX," said Dr. Warner.

"The adverse event profiles were similar for the two treatment groups, in terms of overall adverse events and serious adverse events," said Dr. Warner. In the teriparatide group there were 182 reported adverse events, with 45 considered serious. There were 170 adverse events in the alendronate group, with 39 considered serious. ■