Ask the Expert

Evaluating Pediatric Back Pain

When an adult presents with back pain, the complaint doesn't usually raise eyebrows. When a child or adolescent appears in the clinic complaining of back pain, flags go up. Unlike persistent back pain in adults, which often cannot be attributed to a definable cause, back pain in children and adolescents frequently has a recognizable origin, including developmental abnormalities, inflammatory or infectious diseases, mechanical problems and injuries, or, rarely, spinal tumors, according to Dr. Karen Onel, a pediatric rheumatologist at the University of Chicago's Comer Children's Hospital. And while the management of back pain in adults is often limited to symptom relief, early recognition and treatment of the underlying causes of back pain in children and adolescents can relieve the pain, minimize the risk of disability, and potentially eradicate the problem entirely. For this reason, clinicians should be vigilant in evaluating children and adolescents who present with back pain that has persisted for more than a few days without evidence of an obvious injury, said Dr. Onel.

BY KAREN ONEL, M.D.

In this month's column, Dr. Onel discusses the pertinent considerations in accurately diagnosing the cause of low back pain in a pediatric population, which is critical to accurate treatment planning and management.

Rheumatology News: How common is back pain in children and adolescents?

Dr. Onel: Although it occurs less frequently than in adults, back pain is fairly common in healthy children and adolescents, with an estimated lifetime prevalence of 31%-50% based on population studies conducted in the 1990s. In this age of ever larger book bags and backpacks, backache is becoming an increasingly common complaint among adolescents. Fortunately, serious back problems are uncommon.

RN: What are some of the most important considerations when assessing a child or adolescent who presents with back pain without an obvious injury?

Dr. Onel: A history is crucial. Is the pain is relieved by rest or exacerbated by activities? Does the pain awaken the child? Does the pain radiate or is it confined to one location? Pain that comes on suddenly following an injury or fall is most likely mechanical in nature, while problems that are described primarily as stiffness that is worse in the morning or after prolonged inactivity may be secondary to an inflammatory disease.

RN: What are some of the specific causes of back pain in this population?

Dr. Onel: In the absence of obvious injury, some of the potential causes of back pain in children and adolescents include spondylolysis/spondylolisthesis, scoliosis, Scheuermann's disease, vertebral osteomyelitis, diskitis, benign or malignant tumors, disk disease, spondyloarthropathies, hypermobility, and pain augmentation syndromes.

RN: What do you consider to be the key elements of the physical examination?

Dr. Onel: A careful examination, including full neurologic examination, should be performed on any child complaining of back pain. The presence of point tenderness suggests infection or bony injury, while unexpected masses are suggestive of tumors. Scoliosis often results in one shoulder appearing higher than the other or the hips appearing uneven. Because the primary curvature is usually in the thoracic spine with a secondary compensatory curvature occurring in the lumbar spine, it is often easier to detect scoliosis by running one's hand over the lumbar spine and feeling the unevenness in height between the muscle bundles on the two sides. A child with spondylolysis/spondylolisthesis will usually have pain with lumbar hyperextension. While forward bending in these children is generally painless, extension to an upright position may produce pain. Lumbar disk disease should be suspected when the straight leg raising test is positive. A spondyloarthropathy, such as enthesitis-related arthritis, ankylosing spondylitis, or psoriasis, should be considered in patients with reduced lumbosacral spine mobility and limited anterior forward flexion as demonstrated by an abnormal modified Schober test. A diagnosis of hypermobility typically requires significant hypermobility at a minimum of 4 out of 9 Beighton points. Finally, patients with a pain augmentation syndrome, such as fibromyalgia, will be found to have multiple musculoskeletal trigger points on examination.

RN: Under what circumstances are laboratory and imaging studies warranted?

Dr. Onel: If the history and physical examination suggest underlying pathology, then radiography, complete blood count, erythrocyte sedimentation rate, and a C-reactive protein measurement are warranted. In particular, laboratory testing is necessary for excluding an infection as the source of back pain. For example, children with osteomyelitis or diskitis often have elevated erythrocyte sedimentation rates. The value of laboratory testing for ruling out other inflammatory conditions is less definitive. For example, children with spondyloarthropathies may have entirely normal laboratory testing, suggesting the absence of arthritis. Additionally, because the most severe spondyloarthropathy is ankylosing spondylitis and HLA B27 [human leukocyte antigen B27]–positive males are overrepresented among children with this condition, the diagnosis might be missed in individuals—particularly girls—with appropriate findings who are HLA B27 negative. With respect to imaging, plain radiographs can be useful for identifying large lesions, such as scoliosis. They are also useful for the identification of other structural defects, such as the abnormalities in vertebral development—specifically the wedge shaped vertebral bodies—that are characteristic of Scheuermann's disease. Bone scans, CT scans, and MRIs can be useful for uncovering more subtle defects. ■

Dr. Onel is assistant professor of clinical pediatrics and director of the rheumatology training program at the University of Chicago/Comer Children's Hospital.

By Diana Mahoney, New England Bureau

Close Relatives of ANCA-Associated Vasculitis Patients Are at Low Risk for the Disease

BY DIANA MAHONEY
New England Bureau

Boston — The occurrence of antineutrophil cytoplasmic antibody–associated vasculitis among close relatives of individuals with the condition is low, a Swedish study has shown. The findings provide insight into the long-unanswered question of genetic susceptibility of the autoimmune vasculitis, Dr. Ann Knight reported at the annual meeting of the American College of Rheumatology.

As with rheumatoid arthritis, the etiology of ANCA-associated vasculitis is thought to harbor some interplay between genetic predisposition and environmental triggers; however, little is known about whether the disease actually aggregates in families, said Dr. Knight of Uppsala University Hospital in Sweden. While familial clustering of ANCA-associated vasculitis has been reported in multiple case reports, "our results argue strongly against a pronounced increase in familial risk," she said, noting that the degree of familial aggregation appears to be similar in magnitude to that observed in rheumatoid arthritis.

To assess familial risk of ANCA-associated vasculitis, Dr. Knight and colleagues conducted a population-based study of the Swedish Inpatient Register, a database of all patients admitted to Swedish hospitals since 1964 identifying 1,944 patients with ANCA-associated vasculitis for 1975-2004. Slightly more than half of the patients were male, and their mean age at first hospitalization was 61 years.

Through linkage to nationwide population-based Swedish registers on morbidity, family structure, and vital status, "we compared the occurrence of [ANCA-associated vasculitis] among the 6,670 first-degree relatives and 428 spouses of the [ANCA-associated vasculitis] patients to the occurrence of the disease among 68,994 first-degree relatives and 4,812 spouses of 19,655 randomly selected general population controls," Dr. Knight explained. The investigators used the Cox proportional hazards regression method to estimate relative risks, taking potential familial clustering into account, she said.

Among the 6,670 relatives of ANCA-associated vasculitis patients, there were two cases of the disease (one pair, consisting of a mother and son), Dr. Knight reported. There were 13 cases among the first-degree relatives of the population controls, none of which occurred in the same family, she said. None of the spouses of patients were found to have the disease.

The relative risk of ANCA-associated vasculitis in first-degree relatives was 1.56, Dr. Knight stated. The low relative risk is of clinical relevance, she noted, because patients often ask whether their own diagnosis puts their closest relatives at increased risk for the disease. Previously, clinicians' ability to answer this question rested only on case reports, which by definition do not allow for risk quantification, she said.

Dr. Knight reported having no financial disclosures relative to her presentation. ■

FYI

Bone Health Update Now on CD

The National Institute of Arthritis and Musculoskeletal and Skin Diseases is offering a CD-ROM that provides health professionals and the general public with easy access to the latest information on bone health and diseases. The CD, titled Bone Health Information for You and Your Patients, includes a collection of PDF files of patient education brochures, professional education resources, and Web links to current clinical trials and other useful resources. Free copies are available on request by calling 877-226-4267.

Substance Abuse in Young Adults

The Substance Abuse and Mental Health Services Administration has released a national survey short report titled, "Depression and the Initiation of Cigarette, Alcohol, and Other Drug Use Among Young Adults." The report is based on statistics gathered in adults aged 18-25 and suggests that mental disorders can cause substance abuse and vice versa. For free copies, log onto http://oas.samhsa.gov/2k7/newusers/depression.cfm.