Kids' Age at SLE Onset Sets Osteonecrosis Risk

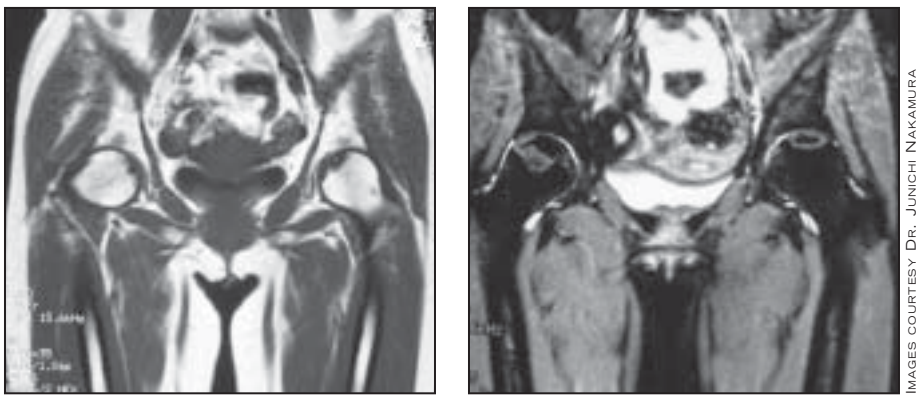
BY DIANA MAHONEY

BOSTON — The incidence of steroid-induced osteonecrosis is significantly lower in childhood systemic lupus erythematosus than in adults with the disease, according to the findings of a prospective MRI study. Additionally, among pediatric patients, age of lupus onset is an independent risk factor for the degenerative bone condition, Dr. Junichi Nakamura reported at the annual meeting of the Pediatric Orthopaedic Society of North America.

Characterized by the death of bone marrow and trabecular bone as a result of disruption of blood supply to the bone, osteonecrosis is a well-known complication of systemic lupus erythematosus (SLE) and is often associated with steroid therapy, yet the incidence of steroid-induced osteonecrosis in childhood SLE has not been well established, according to Dr. Nakamura of Chiba (Japan) Children's Hospital.

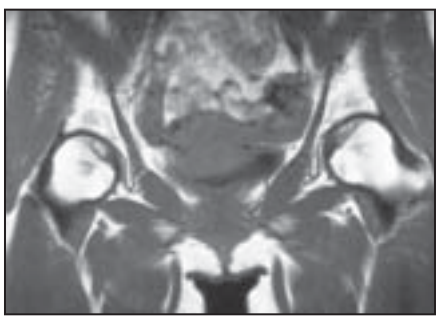
To assess the relative incidence of the condition in children and adults and to determine associated risk factors in children, Dr. Nakamura and his colleagues prospectively studied 169 patients, including 43 with childhood lupus (aged younger than 20 years at time of diagnosis) and 126 adults with the disease. All the patients fulfilled the 1982 revised American College of Rheumatology criteria for SLE, and all underwent MRI of the knee and hip when steroid therapy was initiated and again after at least 1 year of steroid therapy. The mean follow-up period was 7.8 years, and the follow-up rate was 100%, he said.

In total, 676 joint MRIs were analyzed, including initial and follow-up knee and hip MRIs for each adult and childhood SLE patient, Dr. Nakamura said. "The incidence of osteonecrosis was significantly lower in the childhood SLE group than the adults [31% and 41%, respectively]." During the follow-up period, osteonecrosis developed in 20 hips and 33 knees of 20 childhood SLE patients, and in 95 hips and 112 knees of 74 adult SLE patients, he reported.

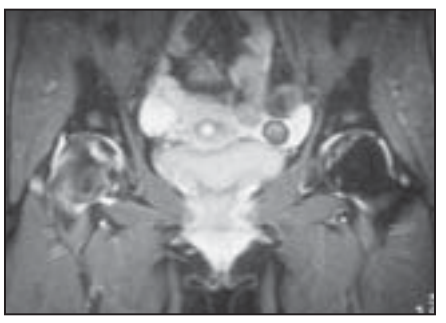


IMAGES COURTESY DR. JUNICHI NAKAMURA

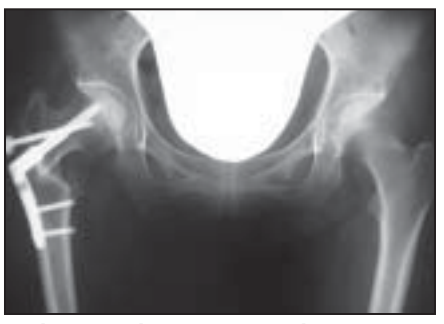
T1 (left) and STIR MRI (right) show osteonecrosis of the femoral head in a 15-year-old with SLE. The growth plates of the femoral heads have already closed.



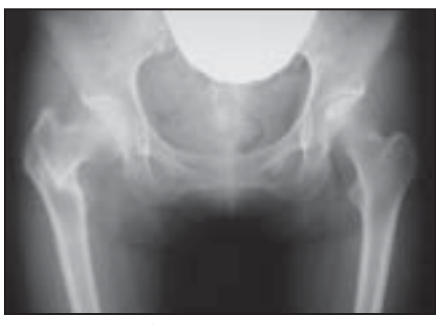
T1 MRI of a 17-year-old girl on steroids shows femoral head osteonecrosis.



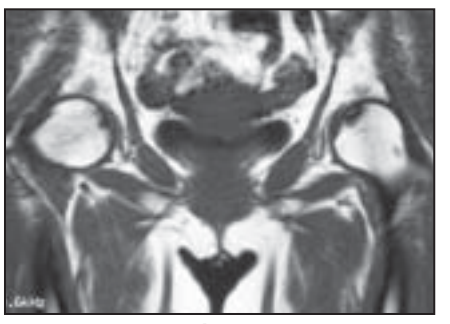
STIR shows bone marrow edema, right femoral head collapse 10 years later.



Patient had intertrochanteric curved varus osteotomy of Nishio on right hip.



Collapse of bilateral femoral head had not progressed 9 years after surgery.



MRI shows reduction of femoral head osteonecrosis 19 years after steroids.

Among the childhood SLE patients, age at SLE onset, highest dose of corticosteroid per day, and highest dose of corticosteroid per weight per day were compared between those who did and did not develop osteonecrosis, Dr. Nakamura said. The mean age of SLE onset in the osteonecrosis group was 17.2 years, compared with 13.3 years in the nonosteonecrosis group, representing a significant difference. The highest corticosteroid dose per day and the highest dose per weight per day were statistically similar between the two groups, he said.

In logistic regression analysis, "the incidence of osteonecrosis was significantly lower at the younger age of initial steroid treatment," said Dr. Nakamura. "The odds ratio for osteonecrosis associated with older age of onset was 1.31." Dosage was not a risk factor, he said.

In the childhood SLE group, "osteonecrosis never developed before 14 years of age," said Dr. Nakamura. "The youngest patients with osteonecrosis included a 14.9-year-old with osteonecrosis in the hip and a 15.5-year-old with osteonecrosis in the knee."

Although the findings should be replicated in a larger investigation, clinicians should be cognizant of the potential increased risk of osteonecrosis in children diagnosed with SLE at a later age, in order to optimize screening and management, Dr. Nakamura concluded.

Dr. Nakamura had no conflicts of interest to disclose with respect to his presentation. ■

Pediatric Psoriatic Arthropathy Merits Systemic Therapy

BY DIANA MAHONEY

Pediatric psoriatic arthropathy requires more than combinations of topical medicines, according to Dr. Kelly M. Cordoro.

Among children with psoriasis, those who present with psoriatic arthropathy; severe, rapidly evolving, and debilitating generalized plaque; or pustular psoriasis represent a challenging subset, management of which "requires immediate response with the utilization of systemic medications that are neither well studied nor [Food and Drug Administration] approved for this indication in children," said Dr. Cordoro of the department of dermatology at the University of California, San Francisco, who discussed such medications in a presentation at the annual Hawaii dermatology seminar sponsored by Skin Disease Education Foundation.

Targeted therapies that are aimed at specific components of the inflammatory cascade, such as anti–tumor necrosis factor agents, are widely used in adults with psoriasis and psoriatic arthritis. Although none of the three TNF antagonists that have received FDA approval for adult psoriasis (etanercept, infliximab, and adalimumab) has been approved for pediatric psoriasis, off-label use of these agents has demonstrated some promise in children with severe disease, Dr. Cordoro said in an interview.

"Etanercept has the most significant published literature, and the fact that the drug has received FDA approval for use in children for other indications [ankylosing spondylitis and psoriatic arthropathy for children aged 2 years and older, and juvenile rheumatoid arthritis in children aged 4 years and older] substantiates recommendations for its use in the pediatric psoriasis population," she said. A recent, randomized controlled trial showed that etanercept can safely and effectively reduce disease severity in children and adolescents aged 4-17 years who have moderate to severe plaque psoriasis (N. Engl. J. Med. 2008;358:241-51).

Biologic agents have also been used in the treatment of children with generalized pustular psoriasis, a serious and rare form of the disease that can be fatal. "Systemic retinoids, cyclosporine, and methotrexate are considered standard therapy, but the use of TNF agents for this indication in children is based on several isolated cases reporting beneficial use in adults with severe forms of pustular psoriasis," Dr. Cordoro said. "Infliximab is the most widely reported agent, but etanercept and adalimumab also have been reported as successful in children with this form of psoriasis."

"Biologic agents represent an excellent choice for well-selected children who have contraindications to the use of phototherapy or other conventional systemic agents for severe psoriasis," said Dr. Cordoro.

With respect to drug safety, "critical evaluation of the potential risk of the anti-TNF agents in children with psoriasis is difficult because of the small number of children treated and the short follow-up period, and enthusiasm for the efficacy, short-term safety, and ease of use of these agents in children is reasonably tempered by concerns about the risk of infection, lymphoma, demyelinating disorders, and cost," Dr. Cordoro said. Even so, "because the known side effect profiles of traditional systemic agents used for severe psoriasis in children [including methotrexate, cyclosporine, and acitretin] are unacceptable, the documented benefits of the TNF inhibitors in children affected by severe, debilitating psoriasis create a therapeutic niche for these agents."

Dr. Cordoro reported having no conflicts of interest with respect to her presentation. SDEF and this news organization are owned by Elsevier. ■