ASK THE EXPERT

Musculoskeletal Ultrasound in Rheumatology

"If you're not using musculoskeletal ultrasound in your practice, you should be," Dr. Herbert S.B. Baraf advised attendees at a state-of-the-art clinical symposium sponsored by the American College of Rheumatology in Chicago earlier this year. "It will add a whole new dimension to your practice and, more importantly, it will reintroduce you to the joint, which is what we're all about."

HERBERT S. B. BARAF, M.D.

Ultrasonography, which has traditionally taken a back seat to other imaging in the assessment of musculoskeletal disease, has begun to take its rightful place as a valuable tool for the diagnosis and follow-up of rheumatologic conditions, according to Dr. Baraf of George Washington University, managing partner of Arthritis and Rheumatism Associates, Washington.

Multiple studies have demonstrated that musculoskeletal ultrasound is more sensitive than clinical examination in the detection of synovitis, more sensitive than conventional radiography in the detection of bone erosions, and more cost effective than magnetic resonance imaging for quick joint evaluations and routine follow-up. But the arena in which the technology is most valuable to the rheumatologist, according to Dr. Baraf, is in the guidance of interventional procedures, including joint aspiration, synovial or soft-tissue biopsy, and joint or tendon sheath injection, where accuracy is critical to diagnostic and treatment efficacy.

In this month's column, Dr. Baraf discusses the benefits of adding musculoskeletal ultrasound to your in-house clinic services.

Rheumatology News: How can musculoskeletal ultrasound enhance the practice of rheumatology management of rheumatologic disease?

Dr. Baraf: It adds a new dimension to the practice of rheumatology. Rheumatologists learning ultrasound have a chance to relearn musculoskeletal anatomy in a practical and more detailed fashion, so it is pertinent to what we do and it is useful. Heretofore, the joint has been a theoretical place to most of us. It is also enjoyable to learn a new manual skill that challenges hand-eye coordination.

RN: How can the technology benefit the management of rheumatologic disease?

Dr. Baraf: Musculoskeletal ultrasound can be used to find joint erosions in early rheumatoid arthritis, although I think there has been an overemphasis on this application. The real utility of the technology is in guiding interventions. Ultrasound-guided joint injection ensures that medication is always localized to the joint, and the localization can be documented. Whereas some musculoskeletal areas are not difficult to aspirate or inject, others, such as an elbow, ankle, acromio-clavicular joint, popliteal cyst, or carpel tunnel, can be quite difficult. Even injections into the knee fail to be placed in the joint more than one-third of the time. With musculoskeletal ultrasound, more accurate injections are possible.

RN: What are the advantages of a rheumatologist performing and interpreting his or her own ultrasound examinations vs. ordering an ultrasound by a radiologist?

Dr. Baraf: Most radiology departments to not have musculoskeletal ultrasound imaging skill. Rather, they rely on magnetic resonance and computed tomography for musculoskeletal imaging. These are more time consuming and expensive, and they also require relying on the interpretations of radiologists who may not be looking at the joint as we would. Radiologists are used to looking at scans to help with a structural diagnosis, while rheumatologists are more likely to be looking for guidance with difficult joint injections or for detecting subtle signs of inflammation around tendons and joints. Additionally, when rheumatologists perform the scans themselves, the results are available instantly, enabling them to make management decisions immediately, rather than scheduling return appointments. Additional benefits to the patient include the fact that there is very little need for preparation with ultrasound and there is no radiation.

RN: What type of training or certification is required for performing in-office musculoskeletal ultrasound?

Dr. Baraf: There is no musculoskeletal ultrasound certification at this time. I urge rheumatologists to take a course and familiarize themselves with the power of the modality. Because ultrasound is an operator dependent modality with few standardized protocols, successfully adapting this technology to clinical practice requires that physicians spend the requisite time needed to learn the technique. I believe that over the next 3 years, we will see a large number of rheumatology training programs adopting this technology and incorporating it into the skill sets of trainees. ■

By Diana Mahoney, New England Bureau

Clinical Benefits Lacking After B-Cell Depletion in AS

BY NANCY WALSH
New York Bureau

LIVERPOOL, ENGLAND — B-cell depletion with rituximab showed benefits on magnetic resonance imaging for patients with active ankylosing spondylitis in a pilot study, but clinical effects were less pronounced, said Dr. Jonathan C. Packham of Keele (England) University.

Populations of CD20-positive B cells have been identified on histologic analysis of the spine in AS, and B-cell–producing germinal centers similar to those seen in RA have been found in the sacroiliac joints in AS, suggesting anti-CD20 treatment might have beneficial therapeutic effects. "We therefore performed a 6-month open-label study of rituximab … using MRI to evaluate its effects on spinal enthesitis," Dr. Packham said at the annual meeting of the British Society for Rheumatology.

Rituximab was administered as two infusions of 1 g each, 2 weeks apart, in seven patients. Clinical assessments, made at four points during the study, included inflammatory markers, tender and swollen joint counts, patient global assessment, nocturnal and total back pain, Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Functional Index (BASFI), and AS quality of life (ASQOL).

At baseline, mean BASDAI and BASFI were 7.8 and 7.9, respectively, and all patients had C-reactive protein levels higher than 10 mg/dL. The mean number of sites of MRI-determined enthesitis/osteitis per patient fell by 49% between baseline and 6 months, from 19.4 to 9.9, which was statistically significant, Dr. Packham said. Significant improvements on MRI were seen in both lumbar spine and sacroiliac joints. The number of swollen joints fell from a mean of 3.9 to 2.6.

There was a nonsignificant trend in improvement in BASDAI and BASFI, with both indices decreased by 1.6 units over 6 months. There were no detectable changes in erythrocyte sedimentation rate, C-reactive protein, or ASQOL scores, however.

In an interview, Dr. Packham said he remains uncertain about whether these results represent a true effect of rituximab or the disease process itself settling down. "Levels of inflammation decreased by half on MRI, but this didn't appear to translate into clinical improvements. The response to rituximab does not seem to be as good as with anti-TNF agents in [AS]," he said. "But it's early days yet. Two other pilot studies are ongoing in Europe."

Dr. Packham disclosed receiving an unrestricted educational grant from F. Hoffmann-La Roche Ltd. ■

Serious Infection Rates Remain Stable With Repeat Rituximab

BY NANCY WALSH
New York Bureau

LIVERPOOL, ENGLAND — Increasing experience with rituximab in patients with rheumatoid arthritis is showing that infection rates remain stable with repeat courses of treatment, Dr. Shouvik Dass has reported.

All patients who participated in the pivotal trials of rituximab in RA were entitled to enter into an open-label phase in which they can receive further courses of treatment, depending on disease activity.

As of September 2006, 1,053 RA patients had received rituximab. There are now 2,438 patient-years of exposure, with 400 patients having had three courses and 142 having had four, said Dr. Dass of the academic unit of musculoskeletal disease, University of Leeds (England).

Both adverse events and serious adverse events have decreased with each course. A total of 702 patients (67%) reported any infection; most were upper respiratory tract and urinary tract infections.

"Importantly, in the context of biologic therapy, there have been no opportunistic infections or cases of viral reactivation or tuberculosis," Dr. Dass said at the annual meeting of the British Society for Rheumatology. Serious adverse event rates also are low and not changing through four courses, he said.

In all, 36 malignancies have been seen in 32 patients, four of which had fatal outcomes. "RA carries its own risk for malignancy, particularly lymphoproliferative disease, but there have been no lymphoproliferative malignancies and no evidence has emerged of increasing malignancies with repeated courses of treatment," he said.

The B-cell depletion that occurs with rituximab therapy also raises concerns about the levels of immunoglobulins, secreted by plasma cells. Up to one-quarter of patients have low IgM by their fourth course of treatment. About 4%-5% have low IgG.

To determine if this decrease in immunoglobulin levels is clinically significant, infection rates were analyzed according to IgM and IgG levels. For patients with normal IgM, the serious infection rate was 4.9 per 100 patient-years, and for those with low IgM it was 6.4 per 100 patient years, a difference that was not statistically significant.

For IgG, the rate of all infections was 109 per 100 patient-years in patients with the lowest levels of IgG, and 63 per 100 patient years among those who had the highest levels, a significant difference, Dr. Dass said.

The rates of serious infections, however, were similar, with 6.8 per 100 patient-years in the lowest IgG group and 5 per 100 patient-years in the highest IgG group.

These findings are consistent with earlier data. "We need to see if there is any further association between changes in immunoglobulins and risk of infection and whether in the future that will affect our clinical practice," he said.

Dr. Dass declared no conflicts. ■