MRI Improves Accuracy of Spondyloarthritis Dx

Three sets of criteria include the option of diagnosing sacroiliitis with MRI.

BY AMY ROTHMAN SCHONFELD

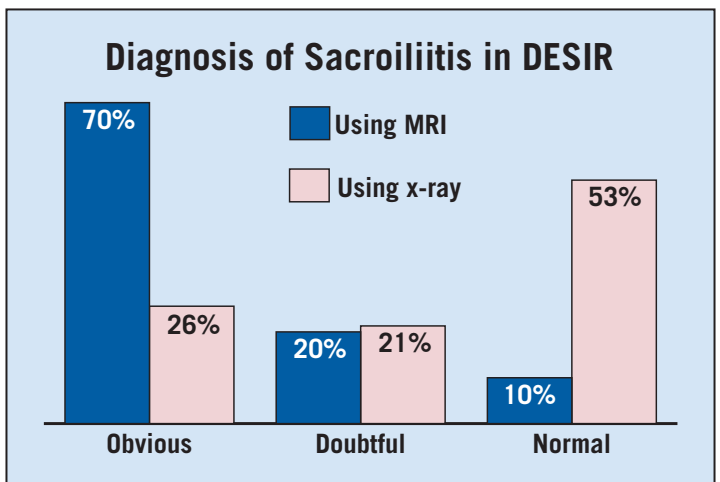
FROM A RHEUMATOLOGY MEETING SPONSORED BY NEW YORK UNIVERSITY

NEW YORK – When magnetic resonance imaging is used instead of plain x-rays in patients with early inflammatory back pain, the diagnostic accuracy for spondyloarthritis jumps from 25% to 70%, according to Dr. Maxime Dougados.

"Seventy-five percent of the time, you cannot make the diagnosis with plain x-rays," said Dr. Dougados, who is professor of rheumatology at the Paris-Descartes University/Cochin Hospital in Paris and the president-elect of EULAR. He presented the Ira Goldstein Memorial Lecture at the meeting, focusing on spondyloarthritis (SpA).

Dr. Dougados presented the as yet unpublished results from the DESIR cohort, a large French national multicenter database of long-term follow-up of 708 patients presenting with early inflammatory back pain that was initiated by the French Society of Rheumatology.

Patients were recruited between December 2007 and April 2010 if they had inflammatory back pain lasting more than 3 months and less than 3 years. The group will be followed for 10 years in the ongoing study.



Note: Based on data for 708 patients presenting with early inflammatory back pain.
Source: Dr. Dougados

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VITALS

Vitals: The diagnostic accuracy for spondyloarthritis was 70% when MRI is used.

Data Source: A long-term prospective follow-up of 708 patients with early, inflammatory back pain who were part of the French DESIR cohort.

Disclosures: Dr. Dougados has received grants for research projects and/or honorarium fees for participation at advisory boards/symposiums from Abbott, Bristol-Myers Squibb, Merck, Pfizer, Sanofi, and UCB.

At baseline, the mean age of the study population was 35 years, 54% were female and 57% were HLA-B27 positive (Joint Bone Spine 2011 March 30 [doi: 10.1016/j.jbspin.2011.01.013]).

With use of radiological sacroiliac changes, the diagnosis was "obvious" for 26% of the cohort, "doubtful" for 21%, and "normal" for 53%.

"These results indicate that at the first clinical visit, the interview is very important to pick up other clinical symptoms," said Dr. Dougados. In fact, about 80% were found to have nonaxial clinical manifestations, including articular peripheral involvement, enthesopathy, dactylitis, anterior chest wall pain, uveitis, or psoriasis.

With MRI, 70% of the cohort were determined to have "obvious" sacroiliitis, about 20% had a "doubtful" diagnosis and about 10% were thought to be "normal."

"These results indicate that you can detect early abnormalities of the sacroiliac joint on MRI even if x-rays are normal," he said.

According to Dr. Dougados, these imaging findings fit well with recent results from the DECLIC study, in which 163 rheumatologists were asked to diagnose 472 patients with early inflammatory back pain, including 161 patients with spondyloarthritis, according to four different sets of criteria.

The specificity of the modified New York criteria, which relies on radiographic signs of sacroiliitis (unilateral grade III or bilateral grade II), fell well below that of the modified Amor criteria, the modified ESSG (European Spondyloarthropathy Study Group) criteria, and the ASAS (Assessment of Spondyloarthritis International Society) criteria.

The latter three criteria include the option of diagnosing sacroiliitis with MRI.

In the new classification criteria from the ASAS, separate criteria are listed for patients with axial SpA with and without peripheral manifestations and patients with peripheral manifestations only.

For axial SpA, one diagnostic pathway requires sacroiliitis on imaging plus one or more SpA feature. Sacroiliitis on MRI is given as much weight as is sacroiliitis on radiographs (Best Pract. Res. Clin. Rheumatol. 2010;24:589-604).

The other pathway requires HLA-B27 positivity plus two or more SpA features.

In patients who have peripheral manifestations only, the requirements include peripheral arthritis, enthesitis or dactylitis plus one or more spondyloarthritis features, including sacroiliitis on imaging.

Dr. Dougados also spoke about recent findings showing that patients with SpA were more likely to have distinct noninflammatory spinal MRI lesions (known as Fatty Romanus lesions) than were patients with degenerative arthritis or spinal malignancy (Ann. Rheum. Dis. 2010;69:891-94).

"As MRI is becoming more important, rheumatologists should be trained to interpret MRIs," he said. "You don't need to be a specialist in radiology." ■

Prevalence, Diagnosis of Ankylosing Spondylitis Still Elusive

BY SHARON WORCESTER

EXPERT ANALYSIS FROM A SYMPOSIUM SPONSORED BY THE AMERICAN COLLEGE OF RHEUMATOLOGY

CHICAGO – The prevalence of ankylosing spondylitis is greatly underestimated, and diagnosis is typically delayed, according to Dr. Michael Weisman.

A 1998 report by the National Arthritis Data Workgroup stated that there are an estimated 2.1 cases of ankylosing spondylitis (AS) per 1,000 individuals older than age 15 years. But this widely cited estimate that 0.21% of the U.S. population has AS was based on classification criteria that required radiographic evidence of AS, said Dr. Weisman, who is director of the division of rheumatology and professor of medicine at Cedars-Sinai Medical Center in Los Angeles.

"This was not a real epidemiologic survey. This was a grossly underestimated prevalence of AS" in the United States, he said, explaining that the researchers relied on the modified New York criteria for AS, which requires not only clinical features, but radiographic changes.

The problem is that radiographic changes take time, and there is a long preradiographic stage in AS during which patients have symptoms for years before developing x-ray changes in sacroiliac joints.

"So when you use modified New York criteria for classification, and you misuse it for diagnosis, you're going to grossly underestimate the frequency of this disease in the population," he said.

'When you use modified New York criteria for classification, and you misuse it for diagnosis, you're going to grossly underestimate the frequency of this disease in the population.'

Additionally, studies consistently show that there is an average delay in diagnosis of at least 7-9 years for AS, he said, noting that this is because AS is hidden from obvious view, imaging techniques are needed to make the diagnosis, and the disease is often not suspected because of "the whole ubiquitous idea of low back pain in the population" (Curr. Opin. Rheumatol. 2000;12:239-47).

Also, that study showed that diagnosis in women is delayed even more than in men, and other studies indicate that women have largely been underdiagnosed, Dr. Weisman said, noting that he was taught during training that AS occurs in a 10:1 male:female ratio. The latest data show that it is more like 3:1.

So how many people really have AS? There have been very few prevalence studies, but the latest compilation of data shows that newer prevalence estimates for AS and spondyloarthritis in general vary widely, from 0.52% to 1.3% in the United States, which suggests that the prevalence may be higher than the current estimated 0.6% prevalence of rheumatoid arthritis in the United States. The estimates of AS/spondyloarthritis in other parts of the world are even higher. The estimated prevalence in Norway, for example, ranges up to 6.7%.

A marked north/south gradient also exists in prevalence, and it mirrors the north/south gradient of HLA (human leukocyte antigen)–B27 gene prevalence in the indigenous populations worldwide, which is "tremendously variable." HLA-B27 positivity is very high in northern areas, along with a higher prevalence of AS in northern areas.

These findings can be helpful for improving diagnosis, he said.

To make a correct – and earlier – diagnosis, use your perspective on inflammatory back pain, Dr. Weisman advised.

"Inflammatory back pain will be, for you, the greatest clue to be able to hone in on this diagnosis," he said.

Onset at a young age, relatively long duration of pain, associated morning stiffness, awakening in the middle of the night, and no improvement with rest are classic signs of inflammatory back pain. In fact, at least one study has shown that among those with chronic back pain, about 5% will have AS; but in those with inflammatory back pain the probability is tripled to about 14%-15%. Adding other features can further improve diagnosis.

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An emerging understanding of genetic influences, for example, is proving helpful for diagnosis. Heritability for AS is greater than 90%, with HLA-B serving as the major disease-associated locus. The HLA-B27 gene marker is present in about 90% of AS cases, although only about 5% of HLA-B27–positive individuals develop AS.

"So the current model is that AS is largely a monogenic disease with multiple modifying genes," Dr. Weisman said at the meeting.

The ERAP1 and IL23R genes are other players.

If a frequency of a low AS prevalence estimate of 0.4% is assumed, HLA-B27 confers a probability of having AS of 3.6%. HLA-B27 along with ERAP1 increases that to about 10%, and the addition of both ERAP1 and IL23R increases it further to about 23%, Dr. Weisman said.

One set of classification criteria uses HLA-B27 plus two additional features of spondyloarthritis; another uses sacroiliitis on imaging plus one spondyloarthritis feature.

If patients with inflammatory back pain are considered, and a lower bound estimate of AS of about 10% is assumed in that population, the addition of B27 positivity increases AS likelihood to about 50%. The addition of ERAP1 and IL23R positivity increases AS likelihood to 80%-90%, he said.

However, these genes add only a small amount to the frequency of the genetic association in this disease, and there are certain caveats that must be considered, Dr. Weisman said. For example, the ERAP1 association with AS is not seen in the Chinese population, and the ERAP1 association is only found in those with HLA-B27 positivity, which implies a gene-gene interaction.

There remains a great deal of work to be done to define the genetic bases of AS, he said.

In the meantime, efforts to better determine AS prevalence based on newer classification criteria are underway.

Unlike the modified New York criteria, which used clear-cut radiographic sacroiliitis, new classification criteria for axial spondyloarthritis developed by the Assessments in Ankylosing Spondylitis Working Group uses additional features to increase sensitivity. One set of criteria uses HLA-B27 plus two additional features of spondyloarthritis for AS classification, and one uses sacroiliitis on imaging plus one spondyloarthritis feature to make a diagnosis. This increases sensitivity of screening to over 80%, he said (Ann. Rheum. Dis. 2009;68:777-83).

Furthermore, a screening questionnaire developed and published last year by Cedars-Sinai Medical Center to help improve diagnosis and to identify more patients on a population basis using various clinical features will be applied to National Health and Nutrition Examination Survey data for 2009-2010, which included a new survey on inflammatory back pain and spondyloarthritis. Together these seek to provide the first U.S. national inflammatory back pain estimate, and the first national U.S. study of HLA-B27 prevalence, Dr. Weisman said.

"With these two, we'll be able to find the lower bound of the true prevalence of ankylosing spondylitis in the United States," he said.

Dr. Weisman had no financial disclosures to report. ■