Imaging Detects Early RA Progression Better

BY SHERRY BOSCHERT

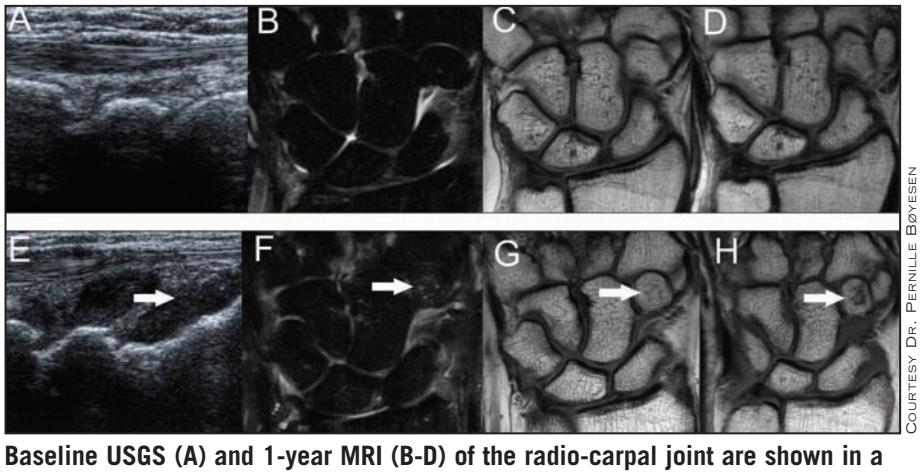
FROM ANNALS OF THE RHEUMATIC DISEASES

Two imaging modalities independently predicted progressive joint erosion in patients with early rheumatoid arthritis as a group, but the tests performed only slightly better than did clinical and demographic variables for individual prognoses, judging from findings of a 1-year study.

Among 79 patients who completed quarterly follow-ups with a battery of imaging and nonimaging measures, 53 (67%) showed erosive progression. On a group level, results of ultrasound gray-scale (USGS) findings of inflammation and magnetic resonance images showing bone marrow edema each were significant predictors that erosive disease progression would be detected by MRI.

Patients with USGS inflammation in the dominant wrist were twice as likely to develop erosive progression and patients with MRI bone marrow edema in the dominant wrist were 28% more likely to develop erosive progression compared with patients without these imaging findings, Dr. Pernille Bøyesen and associates reported (Ann. Rheum. Dis. 2011;70:176-9 [doi: 10.1136/ard.2009.126953]).

On an individual level, however, the imaging modalities were not dramatically better than clinical and demographic variables to predict erosive progression of early RA. USGS inflammation, synovitis on MRI, and bone marrow edema that was visible on MRI performed slightly better than using antibody to cyclic citrullinated protein, rheumatoid factor, and disease activity score based on a 28-joint count, reported Dr. Bøyesen of Diakonhjemmet Hospital, Oslo.



COURTESY DR. PERNILLE BØYESEN

Baseline USGS (A) and 1-year MRI (B-D) of the radio-carpal joint are shown in a patient without erosive progression and in a patient with erosions (arrows) (E-H).

USGS inflammation was the best of 12 imaging modalities and measures of disease severity in identifying patients at risk of developing erosions on MRI, with a sensitivity of 78%, a specificity of 55%, a positive likelihood ration of 1.75, and accuracy of 70%.

Future studies are needed using composite indices of disease progression, including modern imaging modalities, to determine their value as predictors of an individual patient's likelihood of disease progression, the investigators concluded.

The study appears to be the first to confirm previous data suggesting that measuring inflammation by ultrasound can help predict subsequent joint damage, they noted. The findings also confirmed previous data identifying bone marrow edema on MRI as an independent predictor of joint damage.

Other imaging modalities in the study included digital x-ray radiogrammetry (DXR) of cortical bone mineral density in the hand. Results showed only trends toward higher levels of synovitis on MRI and bone density loss on DXR in patients with erosive progression of disease at 1 year. The findings did not support previous studies that reported cortical hand bone mineral density to be independently predictive of erosive progression, perhaps due to the small size of the study, Dr. Bøyesen added.

Given the comprehensive comparison of imaging modalities in the study, however, 84 patients can be considered a large number, the investigators noted.

The multivariate analyses controlled for the effects of age, sex, and other independent variables.

The investigators declared having no conflicts of interest. The study was funded by the Eastern Norway Regional Health Authority, the Research Council of Norway, the Norwegian Rheumatism Association, the Norwegian Women Public Health Association, the Grethe Harbitz Legacy, and the Marie and Else Mustad Legacy. ■

Consider Cancer in RA Patients With Lung Pathology

BY SUSAN LONDON

FROM THE ANNUAL MEETING OF THE AMERICAN COLLEGE OF CHEST PHYSICIANS

VANCOUVER, B.C. – New-onset pulmonary abnormalities in patients with rheumatoid arthritis should keep rheumatologists and pulmonologists on the edge of their seats, clinically speaking. The lung is a frequent site of extra-articular arthritis, and its most common manifestation – interstitial lung disease – carries significant morbidity and mortality risks, according to Dr. Kevin R. Flaherty.

Pulmonary Manifestations of RA

The lifetime risk of interstitial lung disease is nearly 8% in patients with RA, compared with 1% in the general population (Arthritis Rheum. 2010;62:1583-91).

And this disease confers a poor prognosis, with a near tripling of the risk of death and with a median survival after diagnosis of 2.5 years, noted Dr. Flaherty, who is a pulmonologist and associate professor at the University of Michigan Health System in Ann Arbor.

High-resolution computed tomography (HRCT) and pulmonary functioning testing appear to be useful for identifying interstitial lung disease early in its course, according to Dr. Flaherty.

For example, among patients within 2 years of a RA diagnosis, 44% have been found to have HRCT, pulmonary function test, and other abnormalities consistent with interstitial lung disease in the absence of symptoms (Am. J. Respir. Crit. Care Med. 1997;156:528-35).

"The [HRCT] features were mild – reticular thickening, ground glass, and not much honeycombing – suggesting maybe that we might be able to impact the disease, because I think once you get to honeycomb lung and end-stage fibrosis, our ability to impact this disease is likely to be lower," he said.

As for which patients to screen for interstitial lung disease, the predictors of abnormal pulmonary function testing in the RA population are respiratory symptoms, smoking, anti–cyclic citrullinated peptide positivity, and use of prednisone (Arthritis Res. Ther. 2010;12:R104).

When it comes to monitoring interstitial lung disease, HRCT appears to be more sensitive than pulmonary function testing for detecting disease progression (Arch. Intern. Med. 2008;168:159-66).

And carbon monoxide diffusing capacity at diagnosis is the best predictor of progression (Ann. Rheum. Dis. 2002;61:517-21).

"We are starting … to see data emerging that really mirrors what we see in idiopathic lung disease, that the histopathology and the CT appearance can help us in terms of stratifying patients for risk of subsequent mortality," Dr. Flaherty said.

A study of patients with RA-associated interstitial lung disease found 50% mortality in those with a usual interstitial pneumonia (UIP) histology, compared with none in those with a nonspecific interstitial pneumonia (NSIP) histology after a similar median follow-up of about 4 years (Chest 2005;127:2019-27).

A honeycomb pattern on HRCT was found only in the UIP group, suggesting that this radiographic pattern is a good surrogate for this histology, Dr. Flaherty noted. And indeed, patients having a definite UIP radiographic appearance have poorer survival (Eur. Respir. J. 2010;35:1322-8).

Rigorous studies are lacking when it comes to treating interstitial lung disease in the RA population, according to Dr. Flaherty.

Pulmonary Adverse Effects of RA Therapy

Pneumonitis is often a concern in patients using methotrexate to treat RA. But with low-dose therapy, only 3% of patients develop this complication after a mean treatment duration of 23 months (Chest 1996;109:933-8), Dr. Flaherty pointed out.

Anti–tumor necrosis factor agents such as infliximab have been associated with pulmonary adverse effects and complications, including infection, atypical presentation of tuberculosis, and pulmonary fibrosis.

Some research reports have also raised concern that anti-TNF agents may hasten progression of interstitial lung disease in patients with RA and thus increase mortality.

"The data on that are still out," Dr. Flaherty said. Evidence thus far suggests that mortality in patients treated with these agents is similar to that in their counterparts treated with traditional disease-modifying antirheumatic drugs (Ann. Rheum. Dis. 2010;69:1086-91).

Rituximab has been linked to severe infections in patients with RA, the largest share of which (40%) are pulmonary (Arthritis Rheum. 2010;62:2625-32). Only a single infection was opportunistic, and most were bacterial.

Pulmonary Cancers

Patients with RA have increased risk of lung cancer (standardized incidence ratio, 1.63) as well as for another malignancy that can involve the lung, lymphoma (Arthritis Res. Ther. 2008;10:R45), as a result of their underlying disease, long-term immunosuppression, or both.

Treatment with biologic agents has not been associated with a significantly elevated risk of lung cancer among patients with RA, according to Dr. Flaherty.

But treatment with methotrexate has, with the incidence of lung cancer among methotrexate users about triple that of the general population (Arthritis Rheum. 2008;59:794-9).

Users of this drug also have sharply increased rates of non-Hodgkin's lymphoma and melanoma.

Dr. Flaherty did not report any disclosures. ■

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