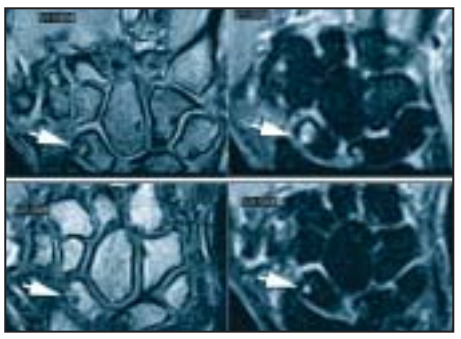
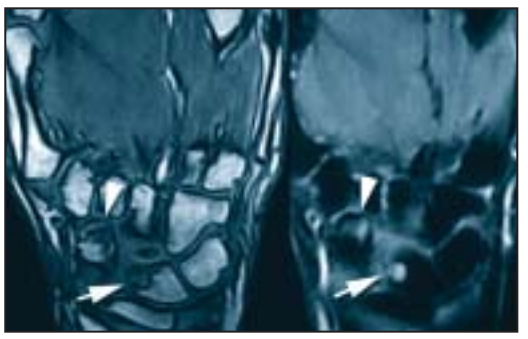
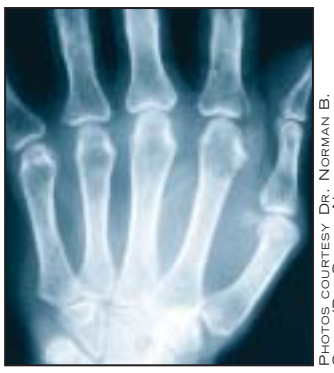
Image of the Month



Extremity MRI. Top, carpal bone erosion; bottom, healed erosions after infliximab. Left are T1, right are STIR sequence.



The MRI images on the left (T1) and on the right (STIR) show erosions of the lunate and scaphoid bones.



A normal x-ray is shown for comparison.

Photos courtesy Dr. Norman B. Gaylis/Dr. Steven Needell

Extremity MRI allows office-based rheumatologists to diagnose rheumatoid arthritis early in its course and then to make clinical decisions as to whether to continue a given therapy, add an additional agent to the regimen, or switch to another agent, said Dr. Norman B. Gaylis, a rheumatologist in private practice in Aventura, Fla., who performs extremity MRI in the office.

Erosions and bone marrow inflammation can be seen on MRI but not on x-ray, which makes MRI a better tool for early diagnosis. "The other way in which I think in-office MRI is extremely helpful is to see whether the treatment is working or is not working," said Dr. Gaylis. Treatment-related changes may not be apparent on x-ray for 2 years or longer. "That's a whole lot of time to be on a drug that is. . . very expensive and. . . maybe not working," he said.

Standard MRI (0.75 tesla or greater) has been shown to be useful in diagnosing RA and for following therapy. The great demand for MRI on the larger machines that are based in hospitals and imaging centers results in long lead times for appointments. As a result, rheumatologists don't typically take advantage of this tool. In addition, patients with active RA sometimes find it intolerably painful to hold the position necessary for imaging in large machines.

Dr. Gaylis noted that extremity MRI (0.2 tesla) is performed in the office and allows for the patient to assume a more comfortable position during imaging. In addition, slices with this type of MRI average less than 1 mm and are contiguous, which is not always true of machines with stronger magnets. This can be important because it is possible for erosions to "hide" between the slices of larger machines, he added.

Extremity MRI is twice as sensitive as radiography in detecting erosions at baseline, according to a recent study by Dr. Gaylis and his colleagues (Mod. Rheumatol. 2007;17:273-8). In the study, 31 patients underwent both baseline extremity MRI and x-ray examinations. For 108 metacarpophalangeal joints, the sensitivity of radiography was 55.8%, compared with MRI, and specificity of radiography was 95.4%. Positive predictive value was 88.9% and negative predictive value was 76.5%.

In terms of in-office set up, smaller extremity MRI machines don't have many special requirements. Extremity MRI can be set up in a standard exam room. The floors need to provide sufficient support because the magnets are heavy. "One thing that you have to be careful of is that you have an environment where there is not that much noise [which interferes with the software]," said Dr. Gaylis. It's also important to keep the room cool because of the magnet.

Although the cost varies, in-office extremity MRI equipment costs around $250,000. However, the machines are typically leased, as are many other pieces of medical equipment, said Dr. Gaylis.

Once an extremity MRI is performed, Dr. Gaylis digitally sends the image to a radiologist, who reads the image and sends back a report, usually the next day. "I like this format because it combines my knowledge of the patient with the expertise of a musculoskeletal radiologist," he said.

MRIs are more complicated to read than are x-rays because every joint imaged with MRI yields a number of slices. "So at the end of my day, after I've seen x number of patients, for me to go and read MRIs is really not practical," said Dr. Gaylis. In addition, musculoskeletal radiologists have a high level of expertise in reading MRIs.

"At the end of the day, I think it allows me more credibility to say that my radiologist is reading it," he said. The rheumatologist's responsibility is to react to the MRI findings and treat the patient appropriately, Dr. Gaylis noted.

Extremity MRIs can also help improve patient compliance. Patients can see the erosions for themselves. "When they see them and they understand why we want to put them through the process of a biologic … it absolutely makes the patient more responsive to [our] therapeutic suggestions," said Dr. Gaylis.

The MRIs can also help keep patients on the right drugs. "They get a lot more understanding when they see an MRI that reflects what's going on," said Dr. Gaylis.

Reimbursement of extremity MRI is a tricky subject, however. Even though extremity MRI is commonplace in the orthopedic setting, there is no reimbursement code that is specific to extremity MRI. Instead, codes for the larger conventional machines are used. Getting third-party payers to foot the bill for extremity MRI can be tough, but it can be done. "We've been able to show them that they actually would save money by getting [the patient] an MRI annually. If you give someone Remicade [infliximab] and it's not working … why not find out and stop it and stop paying all that money if it's not working," said Dr. Gaylis. He estimates that 70% of his payers are paying for extremity MRI.

The American College of Rheumatology has yet to endorse the use of the extremity MRI for RA. The organization issued a white paper 2 years ago on extremity MRI, indicating that more evidence was needed to demonstrate the validity of the technique for RA.

The International Society of Extremity MRI—which comprises rheumatologists and radiologists—currently is working on providing the ACR with enough data to review the white paper findings, according to Dr. Gaylis.

—Kerri Wachter

Certolizumab/Methotrexate Combo Proves Effective for RA

BY JEFF EVANS
Senior Writer

BARCELONA — Treatment of rheumatoid arthritis with a combination of certolizumab pegol and methotrexate improved symptoms in a significantly greater proportion of patients than methotrexate alone, according to the results of a phase III trial.

In the 52-week, multicenter, randomized, double-blind trial, about 60% of patients who received dosing regimens with either 200 mg or 400 mg of certolizumab pegol (Cimzia) and methotrexate achieved an American College of Rheumatology (ACR) 20 level of response at 24 weeks on an intent-to-treat basis, compared with only 14% of those who received placebo plus methotrexate.

An ACR 20 level of response is achieved when there is 20% improvement in the number of tender and swollen joints as well as a 20% improvement in at least three of five other parameters.

The rheumatoid arthritis patients in the current trial, which was called RAPID 1, had to have had an inadequate response to methotrexate therapy alone for at least 6 months prior to the start of the study, Dr. Edward C. Keystone reported at the annual European Congress of Rheumatology.

Certolizumab pegol is a humanized monoclonal Fab' fragment conjugated to polyethylene glycol, which prolongs the amount of time that the drug remains in the bloodstream.

It is the first anti–tumor necrosis factor–α drug to be constructed without the Fc fusion protein, which may cause adverse effects in other anti-TNF-α agents.

The drug also is produced in bacteria rather than in Chinese hamster ovary cells said Dr. Keystone, director of the Rebecca MacDonald Centre for Arthritis and Autoimmune Disease at the University of Toronto.

He has received research funds from and has been a consultant for the biopharmaceutical company Union Chimique Belge (UCB), which funded the study.

The RAPID 1 trial tested the lyophilized formulation of the drug, whereas the RAPID 2 trial evaluated the liquid form of the drug.

The 397 patients who were assigned to the 200-mg arm initially received a 400-mg loading dose of certolizumab pegol at 0, 2, and 4 weeks, followed by 200 mg every 2 weeks. The 394 individuals in the 400-mg arm received 400 mg every 2 weeks.

Most patients who achieved an ACR 50 or ACR 70 response on the combined regimen did so by 16 weeks.

DR. KEYSTONE

The 201 placebo-treated patients followed the same schedule as the 400-mg group. If the patients did not reach an ACR 20 response by 16 weeks, they entered an open-label extension in which they received 400 mg certolizumab pegol every 2 weeks, Dr. Keystone said.

At baseline, patients averaged 52 years of age, 6 years of RA, 13 mg/week methotrexate, 1.5 treatment failures on disease-modifying antirheumatic drugs other than methotrexate, a Disease Activity Score of 7, and about 30 tender and 20 swollen joints.

On an intent-to-treat basis, similar percentages of patients who took the 200-mg and 400-mg certolizumab pegol dosages achieved an ACR 50 level of response (37% and 40%, respectively) or ACR 70 level of response (21% in each of the groups).

ACR 50 and 70 responses occurred in 8% and 3%, respectively, of patients in the placebo group.

Most patients who achieved either an ACR 50 or ACR 70 level of response did so by 16 weeks, which is earlier than has been seen with other anti-TNF agents, Dr. Keystone said.

About 80% of placebo-treated patients withdrew from the study, compared with about 25% of 400-mg patients and 30% of 200-mg patients.

Treatment-emergent adverse events, including serious events, occurred at similar rates between the groups.

There was a trend toward more nonserious and serious infections in the certolizumab pegol–treated groups.

The trial also had a primary end point of Total Modified Sharp Score at the end of 52 weeks, but Dr. Keystone did not report on it at the meeting. ■