

Ultrasound to guide treatment strategy not beneficial in early RA

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According to new research findings presented this week at the 2019 ACR/ARP Annual Meeting, a treatment strategy guided by ultrasound information use does not appear to provide better treatment decisions in patients with early rheumatoid arthritis. The study didn't find any additional reduction in MRI inflammation or structural damage when compared to a conventional treat-to-target strategy (Abstract [#280](#)).

Rheumatoid arthritis (RA) is the most common type of autoimmune arthritis. It is caused when the immune system (the body's defense system) is not working properly. RA causes pain and swelling in the wrist and small joints of the hand and feet. While there is no cure, treatments for RA can stop [joint pain](#) and swelling, but early treatment provides better results.

Researchers at Diakonhjemmet Hospital in Oslo, Norway wanted to determine whether treatment outcomes in early RA can be improved by targeting imaging remission, assessed by ultrasound in addition to clinical remission. Previous results from the ARCTIC and TaSER trials (Haavardsholm et al. BMJ 2016; Dale et al. ARD 2016), did not show that adding structured ultrasound assessment to a treat-to-target strategy was beneficial to early RA patients. However, results from both of those studies showed a trend toward less radiographic progression in the ultrasound arms.

"Patients who have been seemingly successfully treated and are free of clinical signs and symptoms of disease may continue to develop

permanent structural joint damage. There is a need to find better ways to identify these patients and prevent this development," says Espen A. Haavardsholm, MD, Ph.D. a rheumatologist at Diakonhjemmet Hospital and the study's senior author. "The purpose of this follow-up study was to use MRI, which is reliable, objective and more sensitive than X-ray, to make a secondary assessment of inflammatory activity and structural damage progression in the two study arms. If there really were a difference, we would expect to see it in the MRI results."

The randomized trial used data from the ARCTIC trial, including 230 DMARD-naïve patients with early RA who were aged 18 to 75. Patients were randomized 1:1 to follow either an ultrasound-guided strategy targeting DAS (Disease Activity Score) of less than 1.6 with no swollen joints and no power-Doppler signal in any joint, or a conventional strategy targeting DAS of less than 1.6 and no swollen joints. Treatment for all patients began with methotrexate, then escalated to combination therapy with methotrexate/sulfasalazine/hydroxychloroquine, then a biologic DMARD.

In the ultrasound group, patients stepped up their treatment if the ultrasound score indicated a need, overruling the DAS or swollen joint count results. MRI was performed six times on patients' dominant hand, then scored in chronological order by a blinded reader, according to the OMERACT RA MRI Scoring System. There were 218 patients, or 116 using ultrasound-guided strategy and 102 using a conventional strategy, who had MRI at the study's baseline and one or more follow-up visits, and their MRI results were analyzed.

The study's results showed no statistically significant baseline differences between the two treatment groups in either of the combined MRI scores. The mean combined MRI inflammation score decreased during the first year in the ultrasound group by -64.2 and in the conventional strategy group by -59.4, and these scores were maintained

at the same level throughout the second year of follow-up. There was no significant difference in change from baseline between the two groups at any time. The mean combined MRI damage score showed a small increase over time, without any significant difference between the two groups. In the ultrasound group, 39 percent of patients had MRI erosive progression compared to 33 percent in the conventional strategy group.

"Our findings confirm the main conclusion from the ARCTIC trial that targeting ultrasound remission does not lead to improved results," says professor Haavardsholm. "The main message is that people with RA should be diagnosed and started on treatment early, monitored closely, and treatment should be stepped up aggressively until the target of clinical remission is reached. This strategy has proven very successful. However, going beyond this by aiming to also achieve imaging remission increases treatment cost and effort, but does not significantly further improve the results.

So, the ARCTIC trial does not support inclusion of [ultrasound](#) examination as a routine measure to guide treatment in early RA. Ultrasound might be a useful tool in other settings, such as when clinical findings are inconclusive. For patients, this means that if you feel that the medication has worked, your joints feel well and your rheumatologist cannot find any signs of active joint inflammation by physical examination, there is in most cases no need to go through additional imaging exams to determine that your disease is under satisfactory control with your current medication."

Provided by American College of Rheumatology

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