

Obesity associated with higher degree of synovitis in rheumatoid arthritis patients

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Excess weight is linked to a higher degree of synovitis in people with rheumatoid arthritis and can affect their treatment response, according to new research findings presented this week at the 2017 ACR/ARHP Annual Meeting in San Diego.

Rheumatoid arthritis (RA) is a chronic disease that causes pain, stiffness, swelling, and limitation in the motion and function of multiple joints. Though joints are the principal body parts affected by RA, inflammation can develop in other organs as well. An estimated 1.3 million Americans have RA, and the disease typically affects women twice as often as men.

Synovitis is a common, painful and debilitating symptom in many RA [patients](#), in which certain joints become inflamed. To learn more about the possible effects of excess [weight](#) on synovial tissue inflammation, a group of researchers in Italy studied a cohort of 125 RA patients of various weights from disease onset to the achievement of stable remission.

"Obesity incidence is increasing in the general population, and multiple studies confirm that obesity is a risk factor associated with the development of RA," said Stefano Alivernini, MD, a rheumatologist at Catholic University of the Sacred Heart in Rome, Italy, and a lead author of the study. "We are interested in the analysis of fat-derived inflammation in systemic autoimmune diseases as RA, as well as the discovery of biomarkers to individualize and personalize treatment. Despite analysis of synovial inflammation in animal models of arthritis,

no data are available on the synovial tissue analysis of such a population in humans."

Fifty-seven patients in the study were disease-modifying antirheumatic drug-naïve (DMARD-naïve), 43 were inadequate responders to methotrexate, and 25 were in stable clinical and ultrasound remission under methotrexate and TNF-inhibitor therapy. All patients had a synovial tissue biopsy.

At the beginning of the study, the RA patients were divided based on body-mass index: normal weight (BMI under 25), overweight (BMI 25 to 30) and obese (BMI greater than 30). The researchers also performed immunohistochemistry on the patients for CD68+, CD21+, CD20+ and CD3+. Each treatment-naïve RA patient was treated according to the treat-to-target strategy (T2T) and followed for 12 months. DMARD-naïve RA patients in the study were younger than both the inadequate methotrexate responders and those in remission. There were no other significant differences in the demographic, immunologic and clinical characteristics in these patients.

Rates of overweight and obesity were comparable between the three patient groups: 59.6 percent of the DMARD-naïve patients, 58.2 percent of the methotrexate non-responders and 56 percent of the remission patients were either overweight or obese. However, 78.6 percent of the treatment-naïve patients who were obese showed signs of likely follicular synovitis compared to 39.1 percent of the patients in the same treatment-naïve group who were of normal weight. In addition, patients in this group who had a BMI of greater than 35 kg/m² showed higher histological scores for CD68+, sublining CD20+, CD21+ and sublining CD3+ cells than normal weight patients in the same group.

Patients who had not responded to methotrexate therapy also showed similar degrees of synovial inflammation based on their BMI. Regardless

of the pattern of their synovial inflammation—follicular or diverse—the treatment-naïve patients who were overweight or obese had a worse clinical response to T2T therapy compared to treatment-naïve patients of normal weight at both six and 12 months follow-up.

Patients whose disease was in stable remission showed lower disease activity index scores and inflammatory markers (both erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP)) than the treatment-naïve patients. But overweight or obese patients in stable remission did show higher degrees of residual synovial inflammation compared to [normal-weight](#) RA patients in remission.

The researchers concluded that overweight and obesity are associated with a higher degree of histologically proven synovitis in RA patients from the time of disease onset to the achievement of stable remission, and that this factor can influence the response rate to a T2T regimen.

"Based on these results, we believe that it's important to track patients' BMI in clinical practice, since there is a tight relation between the BMI category of RA patients and their chance of a good clinical response to treat-to-target," said Dr. Alivernini. "Since body weight is a modifiable factor, a standardized, multidisciplinary approach to help the patient achieve weight loss should be advised to increase disease control."

Provided by American College of Rheumatology

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