

 RHEUMATOID ARTHRITIS

# Obesity skews markers of inflammation

“...obesity should be taken into account when interpreting inflammatory markers”

BMI is positively associated with an elevated C-reactive protein (CRP) level and erythrocyte sedimentation rate (ESR) in women with rheumatoid arthritis (RA), according to new research published in *Arthritis Care & Research*. The findings suggest that the effects of obesity on these markers of systemic inflammation could bias the assessment of disease activity in clinical practice and in clinical trials.

“Previous studies have shown that obesity is associated with higher levels of CRP in the general population, especially in women, and a small study showed an association between fat mass and CRP in women with RA,” explains corresponding author Michael George. “These findings led us to wonder to what degree obesity impacts CRP and ESR in women and men with RA and whether the elevated levels of CRP and ESR among obese patients are a direct

consequence of obesity or whether they are associated with higher RA disease activity.” In the current study, George *et al.* evaluated associations between BMI and inflammatory markers in the general population using data from the National Health and Nutrition Examination Survey (NHANES), and in two cohorts of patients with RA, one of which included dual-energy X-ray absorptiometry (DXA) measures of fat and lean body mass.

Higher BMI was associated with higher CRP levels in women in the RA cohorts and in the general population, particularly in those with severe obesity (BMI >35 kg/m<sup>2</sup>). Among women with RA, this association was independent of RA disease activity (swollen joint count, tender joint count or patient global scores), but was attenuated by adjustment for DXA-measured fat mass.

Notably, a different pattern was seen in men with RA, as levels of CRP and ESR were highest in those with a low BMI (<20 kg/m<sup>2</sup>). “We suspect that this connection is related to RA disease activity — severe inflammatory disease may have led to weight loss in some of these men,” says George.

The results of this study suggest that obesity should be taken into account when interpreting inflammatory markers. “When assessing patients with possible inflammatory disease, physicians should be aware that patients with obesity, especially severe obesity, may have modest elevations of CRP or ESR just because of their obesity,” George concludes.

Sarah Onuora

**ORIGINAL ARTICLE** George, M. D. *et al.*  
The impact of obesity and adiposity on inflammatory markers in patients with rheumatoid arthritis. *Arthritis Care Res. (Hoboken)*  
<http://dx.doi.org/10.1002/acr.23229> (2017)