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Is MRI a predictive biomarker for clinical response to biologics in rheumatoid arthritis?

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Reply to: Prospective MRI-score to predict negative EULAR-response in patients with rheumatoid arthritis (RA) before therapy-escalation to a biological therapy.

Sewerin P, Vordenbaeumen S, Brinks R, Ostendorf B.

Dear Editor and authors,

We thank Sewerin et al for the data they have provided on the predictive role of Magnetic Resonance Imaging (MRI) for clinical response in rheumatoid arthritis (RA).[1] This study follows on from our previous study demonstrating the predictive value of MRI for radiographic damage progression.[2] This study by Sewerin builds on the evidence for MRI as a imaging biomarker by demonstrating a prediction of clinical response. The investigators used the German REMISSION-PLUS [3] cohort and studied 29 patients who were being escalated to biologic therapy due to inadequate disease control. Clinical

EULAR response to the biologic was more likely in those with higher RA MRI (RAMRIS) scores prior to the escalation of therapy. While these study results need to be replicated in a larger cohort, this study provides initial evidence that MRI measures can help predict who is most likely to benefit from more aggressive interventions.

The concept that MRI more accurately identifies clinically relevant synovitis than clinical assessment is well-established.[4] One hypothesis for why MRI might be a useful predictive biomarker for therapeutic response is that some patients with apparently active RA have elevated disease activity measures due to comorbid conditions, rather than active joint inflammation. For example, a recent study showed that obese patients are less likely to reach clinical remission.[5] Those with elevated disease activity measures without objective evidence of inflammatory disease would be very unlikely to improve with more aggressive treatment of the RA. In contrast, those with greater MRI-detected activity might be expected to have a greater proportion of their clinical disease activity explained by active RA.

Limitations of this study are the small sample size and lack of a more detailed characterization of the study population. However, this study begins to answer an important question in RA, namely - can MRI help rheumatologists make more accurate decisions about escalation of therapy? Given that escalation to biologic therapy involves increased risk of side effects and cost, biomarkers that define both cases at greatest risk of joint destruction and those most likely to benefit clinically are of major interest. MRI, despite being expensive, is likely to be cost-effective in circumstances when its use prevents unnecessary or inappropriate use of much more expensive and long-term therapies.

References

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