Background: The serum MMP3 level is considered biomarker which reflects local inflammation of joints and correlates with joint damage progression in early rheumatoid arthritis (1).

Objectives: To investigate the association of high baseline MMP3 serum levels with bone erosion finding at the level of typical location for rheumatoid arthritis (RA) in patients with early, treatment “naïve” RA, who has no radiographic visible erosions, using ultrasound method (US).

Methods: Sixty-three pts. (9 males and 54 females; mean age 53.4 yrs 21-81 ± 14.1) with early RA according to EULAR/ACR 2010 criteria and symptom duration of ≤12 months (mean duration of 3.8 months) had baseline serum MMP3 levels tested. Serum levels of soluble MMP3 were performed blindly, without knowledge of the US data at the basal visit only, using the recommended normal cut-off range (a level above normal was rated as positive). Patients had been DMARDs/glucocorticoid naïve, with no visible X-ray erosions, using ultrasound method (US).

Results: The 50 pts completed follow-up. 46 pts. had basal serum MMP3 level higher than normal (MMP3+, mean value 185.1±241.0). US bone erosions were present in 55/63 (87.3%) pts, most often in MTP5 joints, both at the visit and after 24 months. At baseline visit no significant difference was found between a group of MMP3+ and MMP3- pts regarding to US bone erosions presence at the level of all analyzed joints (styloid process: 12 MMP3+/4 MMP3- pts.; p=0.836; MCP2: 14 MMP3+/6 MMP3- pts., p=0.713; MCP5: 26 MMP3+/11 MMP3- pts., p=0.55). After 24 months, significant difference was found between a group of MMP3+ and negative pts for MTP5 US bone erosions finding (33 MMP3+/ 6 MMP3- pts; p=0.03) only, (styloid process:21 MMP3+/5 MMP3- pts; p=0.623; MCP2: 26 MMP3+/7 MMP3- pts; p=0.851, MCP5: 14 MMP3+/2 MMP3- pts, p=0.266).

Conclusion: In our group of RA patients without initial X-ray changes, the high serum level of MMP3 was significantly correlated with new MTP5 bone erosions by US after 2-year of follow-up.


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activity in RA, and specifically the effect of comorbidities on assessing inflammatory activity, B3 and five studies, respectively, were included (Figure 1b). At patient level, ultrasonography (US) scores were related to composite indices (range of correlations 0.25-0.76) and swollen joint count (range: r = 0.33-0.78). A multi-biomarker disease activity score (range r with composite indices: 0.41-0.52) and optical spectral transmission measures (range r with US: 0.54-0.64) were promising measures, but cut-offs are preliminary. At joint level, US was related to MRI (range of sensitivity 64-91% and specificity 60-94% for synovitis) and histology (range r: 0.52-0.65 for inflammation). Concomitant obesity and fibromyalgia may lead to overestimation of disease activity according to composite indices, US may be used to assess inflammatory activity in these patients.

**Conclusion:** This SLR highlights the gap of knowledge in the optimal confirmation of a (mis-)diagnosis of RA or diagnosis of mimicking diseases in difficult-to-treat RA patients. Current evidence for optimal assessment of inflammatory activity when there is doubt based on clinical assessment and composite indices is limited. Most studies reported correlations which are not directly useful in clinical practice to determine presence or absence of inflammatory activity. The evidence will be updated up to December 2019. Currently, US seems the most accurate measure to evaluate the presence of inflammation in difficult-to-treat RA patients, including those with concomitant obesity or fibromyalgia.

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**THU0111 PHYSICIAN'S GLOBAL ASSESSMENT OF DISEASE ACTIVITY IN RHEUMATOID ARTHRITIS: WHAT DO WE REALLY MEAN?**


**Background:** Physician’s global assessment of disease activity (PhGA) is included in some scores of disease activity and, demonstrably, plays a major role upon treatment decisions in rheumatoid arthritis (RA) [1, 2, 3]. Therefore, understanding the reasons underlying the physician’s assessment is crucial.

**Objectives:** To understand the reasons underlying the physician’s assessment.

**Methods:** Cross-sectional study, including consecutive RA patients followed in a Tertiary Rheumatology Department. Socio-demographic (age and gender) and clinical data were collected through a standardized protocol, including 28 tender (T28) and swollen joints (SJC28) count, C-Reactive Protein (CRP), Erythrocyte Sedimentation Rate (ESR), Disease activity Score (DAS28-4v-CRP and DAS28-4v-ESR), PhGA and Patient Global Assessment of disease activity (PGA) through a Visual Analogic Scale (VAS) 0-100mm, Health Assessment Questionnaire (HAQ), European Quality of Life-5 Dimensions (EQ-5D) and Hospital Anxiety and Depression Scale (HADS). Correlation between PhGA and other continuous variables was evaluated through Pearson’s Correlation Coefficient and variables with p<0.05 in univariate analysis were included in multivariable linear regression (stepwise model).

**Results:** 392 RA patients (80.6% female, 65.3±12.6 years) were included. PhGA was weakly correlated with CRP (r=0.23), TNFα (r=0.25), PGA (r=0.26), HAQ (r=0.35) and other variables. Moderate correlations were observed with SJC28 (r=0.45) and DAS-4v-CRP (r=0.48). In multivariable analysis, SJC28 (β=4.14, 95%CI:13.16-5.12), CRP (β=0.22, 95%CI: 0.02-0.03), HAQ (β=4.46, 95%CI:150.742) and PGA (β=0.08, 95% CI:0.00-0.16) remained as independent correlates of PhGA (R2=0.27, p<.05).

**Conclusion:** In this study, PhGA was associated with SJC28, CRP, HAQ and PGA, suggesting that a comprehensive reading of the disease into account. However, a large proportion of the variance of PhGA remains unexplained. Given its driving role in treatment decisions, the need to standardize and better understand PhGA seems to deserve a closer attention.

**References:**


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**THU0112 DIAGNOSTIC PERFORMANCE OF ANTI-CYCLIC CITRULLINATED PEPTIDE (CCP) 2 AND CCP3.1 ASSAYS IN EARLY RHEUMATOID ARTHRITIS**

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**Background:** Anti-cyclic citrullinated peptide (CCP) antibodies are the most specific markers for rheumatoid arthritis (RA). Different generations of assays have been developed among which the anti-CCP2 and anti-CCP3 assays are most widely used.

**Objectives:** Since some differences between these assays have been reported it was our aim to compare their diagnostic performance and evaluate their usefulness for diagnostics of early RA.

**Methods:** The anti-CCP3.1 assay (Quanta Lite CCP3.1 IgG/IgA, Inova Diagnostics) was compared to anti-CCP2 IgG and IgA assays (EIA121 CCP, Thermo Fisher Scientific) employing sera of 184 early RA patients, 360 disease controls and 98 healthy subjects.

**Results:** Anti-CCP2 IgG and IgA assays showed high specificity versus healthy subjects (98.6%, 98.1%) and disease controls (98.8%, 99.4%). Sensitivity was 52.2% for the IgG and 30.4% for the IgA assay, respectively, resulting in high positive likelihood ratios (LR+) of 475 (IgG) and 50.7 (IgA). However, IgA antibodies did not show an added diagnostic value since all positive patients were also IgG positive. The anti-CCP3.1 assay was slightly more sensitive than the anti-CCP2 IgG assay (55.4%) but specificity was markedly lower and amounted to 95.9% versus healthy subjects and 90.8% versus disease controls resulting in a LR+ of only 6.0. Out of 360 disease controls 33 (9.2%) were found to be positive for CCP3.1 but among these only four (1.1%) were positive for anti-CCP2 IgG (and 2 of these also for anti-CCP2 IgA). The most common diagnosis of CCP3.1 positive control patients was osteoarthritis (12 patients); six patients suffered from spondyloarthropathies, two patients had reactive arthritis, 10 patients were diagnosed with an autoimmune rheumatic disease (AI RMD), and two patients had osteoporosis. However, at a cut-off of 60 AU/ml only nine disease controls remained positive (3 OA, 1 SpA, 4 AI RMD, 1 ReA and 3 of them were also positive in the anti-CCP2 assay). When applying 60 AU/ml (high positive) as cut-off value at the early RA cohort, sensitivity (52.7%) became comparable to the anti-CCP2 assay and both specificity (97.5%) and LR+ (210.8) increased substantially.

**Conclusion:** When interpreting the results of anti-CCP assays disease specificity should be taken into account in order to reduce the risk of misclassification and a false positive diagnosis.

### Table 1. Specificity, sensitivity and positive likelihood ratio (LR+) of CCP2 (IgG, IgA) and CCP3.1 assays on September 17, 2023 by guest. Protected by copyright.http://ard.bmj.com/ Ann Rheum Dis: first published as 10.1136/annrheumdis-2020-eular.4338 on 2 June 2020.