Diagnostic Value Of Anti-Citrullinated Proteins Antibodies In Rheumatoid Arthritis.

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Background/Purpose: Citrulline and vimentin are some of the proteins used as antigens for anti-citrullinated proteins antibodies (ACPAs) detection for the diagnosis of rheumatoid arthritis (RA). In our country, anti-mutated citrullinated vimentin (anti-MCV) kit is 50% cheaper than the anti-cyclic citrullinated peptide (anti-CCP3) kit. The aim of our study was to evaluate the diagnostic value of anti-MCV compared to anti-CCP3 and rheumatoid factor (RF) and to explore the relationship between them and disease activity.

Methods: Consecutive patients _ 18 years with RA (ACR 1987 and ACR/EULAR 2010 criteria) were included. The control group consisted of 73 subjects with undifferentiated arthritis, SLE, Psoriatic Arthritis, Sjo¨gren's Syndrome and Erosive Osteoarthritis (non RA arthritis). Anti- MCV and anti-CCP3 were determined by ELISA and RF by immunoturbidimetry. The cutoff value for the three methods was _ 20 IU/ml.
Sensitivity (S), Specificity (E), Positive and Negative Predictive Values (PPV, NPV) and Likelihood Ratio (LR) of the RF, anti-CCP3 and anti-MCV were assessed using a two way table (Table). Binary logistic regression analyses were performed, using high disease activity (DAS28_5.1) as dependent variable. According to the RF, anti-CCP3 and anti-MCV concentrations, three groups of patients were obtained: low concentrations (under 25 percentile); intermediate concentrations (between 25 and 75 percentile) and high concentrations (above 75 percentile). The values of DAS28 for these three groups were compared by ANOVA and post-hoc tests.

Results: 234 patients were evaluated (161 RA and 73 controls). In the RA group, 85% were female, the mean age was 53 (18–91) years, the median symptoms duration was 120 months (IQR 39–180) and 31(19%) were early RA patients (_2 years). Mean DAS28 was 3.6 (_1.5); and the median HAQ 0.75 (IQR 0.25–1.25). The median of RF was 104 IU/ml (IQR 35–225); anti-CCP3 180 IU/ml (IQR 95–210) and anti-MCV 300 IU (IQR 55–1000). Higher values of DAS28 were observed in the group of patients with RF _ 225 IU/ml (mean DAS28 4.3 p _ 0.006) and also in patients with anti-MCV _ 1000 IU (DAS28 4.2 p_0.01). There were no differences for anti-CCP3. In early RA patients, a multivariate analysis (adjusted by symptom duration) showed that anti-MCV levels were associated with high disease activity. The OR estimated for the association between high disease activity and anti-MCV _ 1000 IU in early RA patients was 11.8 (CI 95%1.049– 132.9). There was not significant association between RF, anti- MCV nor anti-CCP3 and DAS28 _ 5.1 in established RA patients.

	S	E	PPV	NPV	LR
Anti-MCV	93.4	83.6	93	85	5.69
Anti-CCP3	83.7	84.9	93	69	5.54
RF	84.9	84.9	93	71	5.62

Conclusion: In our study, anti-MCV compared to anti-CCP3 and RF had a higher sensitivity with equal specificity. We found increased RA activity in patients with higher titers of RF and anti-MCV.