Cervical spine damage in patients with rheumatoid arthritis

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Background: Rheumatoid arthritis (RA) is a chronic systemic inflammatory disease. It is one of the most severe forms of arthritis resulting in disability. Every joint can be affected by RA including spine vertebrae especially cervical spine. Cervical spine damage can be found in 17 – 86% patients with RA [1]. Clinically it manifests with neck pain, C2 root pain. Cervical instability can be visualised on radiographs as atlantoaxial subluxation, vertical subluxation and subaxial cervical subluxation [2].

Objective: To obtain data from patients with RA to evaluate disease activity, cervical spine damage and link between major complaints about neck and radiographic changes. To compare results of study with data found in literature.

Methods: In this clinical study were included patients admitted to Stradin’s University Hospital Rheumatology ward with diagnosis RA in the time period from January to May 2003. Patients were examined radiologically with cervical spine x-ray in anterior – posterior and lateral positions and C1 – C2 level x-ray through open mouth.

Results: The total number of patients were 53 (87% female and 13% male); mean age 58 ± 11 years; mean duration of RA 12.7 ± 9.8 years; mean DAS28 6.5 ± 1.4, DAS28 > 5.1 had 79% patients, DAS28 > 3.2 ≤ 5.1 19%, DAS28 ≤ 3.2 2% patients. 83% were complaining about the pain in the neck; 87% were examined radiologically; 38% had cervical spine damage on x-ray and 40% from those patients had cervical spine subluxation (atlantoaxial subluxation 25%, vertical subluxation 50%, combination of both 25%) but 50% had radiological changes in cervical spine such as asymmetric spaces of atlantoaxial joint, subchondral sclerosis or erosions. Remaining 10% were defined as possible subluxation. Mean age of patients with subluxation was 16 ± 9 years.

Conclusions: Patients included in this study received disease modifying antirheumatic drugs but majority could not reach stable remission showing the necessity of treatment with biologic agents. Each patient needs complex investigation to evaluate disease activity and prognosis. This applies to radiological investigation of cervical spine even there are no complaints. This will allow us to detect cervical spine damage as early as possible and to choose the right treatment.

References

The comparison of diagnostic performance and prognostic value of ELISA aCCP2 and IgM-RF detection tests in rheumatoid arthritis.

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Objective: To investigate the (early and established) rheumatoid arthritis diagnostic performances of anti-cyclic citrullinated peptide antibody (anti-CCP) in comparison with RF. To determine the anti-CCP and RF associations with radiological progression rates and extra-articular manifestations in RA.

Methods: The second generation enzyme-linked immunosorbent assay (ELISA) kit was used for the detection of anti-CCP. Two classical tests: SCAT and latex fixation test were performed to determine the presence and titer of IgM-RF. A total of 173 RA patients [fulfilling at baseline the ARA 1987 diagnostic criteria; 82,1% female; median age 51,5 yrs (20-80); median symptoms duration 12 months (1,5-408)] and 92 controls (connective tissues diseases, seronegative spondyloarthopathies, crystal-induced arthritides, osteoarthritis, others) were included in the study. The ERA group consisted of 94 patients with the disease symptoms duration ≤ 1 year [77,7% female, median age 50,1 yrs (20-80)]. The RA patients were evaluated at baseline and ERA subgroup additionally after one year of follow-up. Bone involvement was evaluated by Larsen score, Sharp score and according to Steinbrocker scale.

Results: Anti-CCP2 demonstrated significantly higher specificity (95,7%) to RF (89,1%). In ERA the sensitivities of the studied markers were lower than in ESRA (established RA > 1 year), although in both subgroups higher for anti-CCP2 (ERA: anti-CCP2 85,1%, RF 45,7%; ESRA: anti-CCP2 92,4%, RF 48,1%). The ROC analyses for both whole RA group, and ERA subgroup revealed the marked superiority of anti-CCP2 – its curve passed closer to the upper left corner than this of RF and the area under the curve (AUC) of anti-CCP2 was significantly larger (p< 0,0001). It was not revealed evidence for the superiority of the concomitant aCCP2 and RF detection to aCCP2 ELISA testing alone for the diagnostic utility in early (and established) RA.

In ERA cohort adapted cut offs for aCCP2 and RF, corresponding to a specificity of ≥ 98,5% was defined. This yielded the following sensitivities: RF 7,4%, anti-CCP2 77,7%.

After one year of follow-up significant differences in radiological progression rates were found between at baseline aCCP2 - positive and negative ERA patients in contrary to RF status in this group. Additionally, it was demonstrated a significant association between the serum aCCP2 positivity and their value and extra-articular manifestations in all RA patients.

Conclusion: Second generation ELISA detection of antibodies to cyclic citrullinated peptide showed higher discriminative ability than tests used to detection of RF. Anti-CCP antibodies were proved to have the prognostic value for radiological progression during relatively short time of follow-up (12 months) and seemed to be associated with general poor prognosis in RA due to their association with extra-articular manifestations.