Rheumatoid factor and new generation of anti-cyclic citrullinated peptide antibodies as diagnostic tools in rheumatoid arthritis

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ABSTRACT

Background: Rheumatoid arthritis (RA) is an autoimmune disease which lead to progressive joint damage and affects patient's quality of life. Since rheumatoid factor (RF) has limited diagnostic performance, new generation of anti-cyclic citrullinated peptide (anti-CCP) antibodies were then introduced. This study aims to compare serum RF, anti-CCP2 IgG, anti-CCP2 IgA and anti-CCP3.1 IgG/IgA antibodies status in RA patients and healthy controls. The association between these serological markers and factors associated with functional status of RA patients were also evaluated. **Methods:** This cross-sectional study was conducted among 46 RA patients and 40 healthy controls in Rheumatology Clinic, Hospital USM. Five millilitres of blood were withdrawn. RF was analyzed using Direct Latex, whereas anti-CCP2 IgG, anti-CCP2 IgA and anti-CCP3.1 IgG/IgA antibodies were assayed using Enzyme Linked Immunosorbent Assay. Sociodemographic data, clinical characteristics and serological markers were evaluated for the association with quality of life based on modified Health Assessment Questionnaire (mHAQ) score. The data were analyzed using SPSS version 26.0 with the p value of < 0.05 was considered significant. **Results:** Majority of RA patients had positive status of serum RF (78.3%), anti-CCP2 IgG (63.0%) and anti-CCP3.1 IgG/IgA (63.0%). Significant differences were found in RF ($p<0.000$), anti-CCP2 IgG ($p<0.000$), anti-CCP2 IgA ($p<0.000$) and anti-CCP3.1 IgG/IgA ($p<0.000$) antibodies between RA and control groups. RA patients had mild functional status based on mHAQ score. Significant association were found between pain score ($p <0.000$), anti-CCP2 IgG antibody status ($p =0.049$) and functional status of RA. No significant association between RF and mHAQ score. **Conclusion:** Positive status of RF, anti-CCP2 IgG, and anti-CCP3.1 IgG/IgA antibodies in majority of RA patients indicates the significance of these serological markers in diagnosis and prognosis of RA. Future studies need to be conducted to obtain more understanding regarding the role of new generation anti-CCP antibodies in diagnosis and pathogenesis of RA.