Introduction: Rheumatoid arthritis (RA) is an autoimmune disease associated with chronic inflammation of joints causing deformities and functional impairment. Diagnosis primarily depends on clinical manifestations because of lack of suitable diagnostic tests. Rheumatoid factor (RF) is an autoantibody specific for Fc portion of human IgG. RF has low specificity as high false positive results are common in general population. Anti CCP antibody is also a useful marker to diagnose rheumatoid arthritis and included in one of the criteria of American College of Rheumatology (ACR) / European League against Rheumatism (EULAR) classification of RA. Thus the present study was planned to compare the diagnostic utility of RF and Anti CCP antibody test in Rheumatoid arthritis patients in a Tertiary Care Hospital.

Aim & Objective: To compare the diagnostic utility of RF and Anti CCP antibody test in Rheumatoid arthritis patients.

Material & Methods: A total of 72 samples were taken from clinically suspected RA patients over a period of 3 months. RF was determined by latex agglutination method (STAR DIAGNOSTICS) and Anti CCP antibody by ELISA (IMTEC ANTI CCP ANTIBODIES ELISA-GERMANY). The tests were performed as per manufacturer’s instructions.

Results & Discussion: Out of total 72 samples tested, 47(58.33%) were positive. Both RF and Anti CCP Antibody was positive in 9 cases. Only RF positivity was seen in 8 cases and only Anti CCP antibody was positive in 30 cases. In present study combination of Anti CCP antibody and Rheumatoid factor together have shown positive predictive value for Rheumatoid Arthritis patients which lack specific signs and symptoms related to diagnosis of RA.

Conclusion: Anti CCP antibody test and RF can be used concomitantly to diagnose Rheumatoid arthritis and can be used in clinical settings so that appropriate management can be initiated to decrease future morbidity.

Keywords: Anti CCP, RF, ELISA, RA.

RF and Anti-CCP Antibody Tests: A comparative study in the Diagnosis of Rheumatoid Arthritis in a Tertiary Care Hospital

Ashwini Kacharu Dedwal1, Ankita Anand2*, Sae Satish Pot3, Renu Satish Bharadwaj4

1, 2Assistant Professor, 3Associate Professor, 4Professor & Head, Dept. of Microbiology, B.J. Govt. Medical College, Pune

*Corresponding Author: Email: drankita.anand27@gmail.com

Abstract

Introduction: Rheumatoid arthritis (RA) is an autoimmune disease associated with chronic inflammation of joints causing deformities and functional impairment. Diagnosis primarily depends on clinical manifestations because of lack of suitable diagnostic tests. Rheumatoid factor (RF) is an autoantibody specific for Fc portion of human IgG. RF has low specificity as high false positive results are common in general population. Anti CCP antibody is also a useful marker to diagnose rheumatoid arthritis and included in one of the criteria of American College of Rheumatology (ACR) / European League against Rheumatism (EULAR) classification of RA. Thus the present study was planned to compare the diagnostic utility of RF and Anti CCP antibody test in Rheumatoid arthritis patients in a Tertiary Care Hospital.

Aim & Objective: To compare the diagnostic utility of RF and Anti CCP antibody test in Rheumatoid arthritis patients.

Material & Methods: A total of 72 samples were taken from clinically suspected RA patients over a period of 3 months. RF was determined by latex agglutination method (STAR DIAGNOSTICS) and Anti CCP antibody by ELISA (IMTEC ANTI CCP ANTIBODIES ELISA-GERMANY). The tests were performed as per manufacturer’s instructions.

Results & Discussion: Out of total 72 samples tested, 47 (58.33%) were positive. Both RF and Anti CCP Antibody was positive in 9 cases. Only RF positivity was seen in 8 cases and only Anti CCP antibody was positive in 30 cases. In present study combination of Anti CCP antibody and Rheumatoid factor together have shown positive predictive value for Rheumatoid Arthritis patients which lack specific signs and symptoms related to diagnosis of RA.

Conclusion: Anti CCP antibody test and RF can be used concomitantly to diagnose Rheumatoid arthritis and can be used in clinical settings so that appropriate management can be initiated to decrease future morbidity.

Keywords: Anti CCP, RF, ELISA, RA.
RF was considered positive at values greater than 8 IU/ml. Data was analysed on MS Excel sheet and SPSS software.

Results

72 patients comprising of 49(68%) females and 23(32%) males with male to female ratio of 1:2. Most common age group was 21-40 (40%) followed by 41-60 (32%), 61-80(14%), above 80(1%) and 1-20(13%).

Out of total 72 samples tested, 47(58.33%) were positive. RF was seen in 17(23.61%) and Anti CCP Antibody was seen in 39(54.16%) of cases. (Fig. 1)

Both RF and Anti CCP Antibody positive in 9 , only RF positive in 8 and only Anti CCP antibody positive in 30 cases. (Fig. 3)

Out of 55 RF seronegative samples 30(54%) were Anti CCP positive and 25(46%) were Anti CCP negative. In 17 RF seropositive samples 9(52%) were Anti CCP positive and 8(48%) were Anti CCP negative. (Fig. 2)

Fig. 1: Comparison of positivity of RF and Anti CCP antibody in clinically suspected RA cases

Fig. 2: Comparison of positivity of RF and Anti CCP Antibody n=72

Discussion

In the present study total 72 patients were included with male to female ratio of 1:2 and most common age group was 21-60 (72%). RF was seen in 17(23.61%) and Anti CCP Antibody was seen in 39(54.16%) of cases.

In RF seronegative patients 30 (54%) of patients showed Anti CCP Antibody while 25 (46%) did not have Anti CCP Antibodies in there serum while in RF seropositive patients 9 (52%) of patients showed Anti CCP Antibodies and 8 (48%) did not show antibodies in serum. Similar findings with our study was shown by Kastbom et al,(10) Naddim Afzal et al(11) also showed that Anti CCP Antibodies in RF seronegative patients that indicates that Autoantibodies are formed early in the course of RA before RF appear in the serum.

In the present study RF seropositive patients did not show Anti CCP Antibodies this can indicate that they are RA negative and might be suffering from other diseases which causes seropositivity thus indicates that RF is not a reliable marker for RA and can be raised in in other autoimmune diseases.

Testing for the combination of anti-CCP antibodies and IgM RF may be better for excluding the diagnosis of RA than is achievable by testing for either antibody alone. Those with early arthritis who are RF or anti-CCP antibody positive are at an increased risk of developing RA and erosive joint disease, while those with neither of these markers are less likely to develop joint damage. Thus, earlier intervention with disease modifying antirheumatic drug (DMARD) therapy may be warranted in those with positive markers, while symptomatic treatment may be appropriate for those lacking both RF and anti-CCP antibodies when first seen.

In RF seronegative patients, anti-CCP can be helpful in confirming the diagnosis of RA.

Step up of anti-CCP testing in the ACR’s updated 2010 RA classification criteria reveals the clinical value of these tests for the diagnosis of RA patients.(8)

Fig. 3: Comparison of Anti CCP in RF positive and negative samples
However, this does not mean that anti-CCP can replace RF in diagnostic and prognostic testing for RA. We recommend that Anti CCP antibody test and RF should be used concomitantly to diagnose early RA and can be used in clinical settings so that appropriate management can be initiated to decrease future morbidity.

References