

**The study of Tempromandibular joint  
disorders and Anti-Cyclic Citrullinated Peptide  
antibodies in serum and saliva of patients with  
Rheumatoid Arthritis**

A Thesis

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By

**Raya Muwaffaq Khidhir**

B.D.S.

Supervised by

**Professor Dr. Raja Hadi Al-Jubouri**

B.D.S., M.Sc., Ph.D. (Oral Medicine)

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# Abstract

**Background:**

Rheumatoid arthritis is an autoimmune disease that affects mainly the synovial membranes and articular structures and is characterized by chronic, systemic inflammation involving multiple joints. Diagnosis of Rheumatoid Arthritis has been primarily based on clinical manifestations, radiological features and serological investigations including Rheumatoid Factor. Antibodies to cyclic citrullinated peptide have been documented extensively over recent years as highly specific serological markers for rheumatoid arthritis, with important clinical implications for diagnosis, prognosis and are also associated with joints destruction, hence, may play a role in predicting of the disease severity.

Being a synovial joint, the temporomandibular Joint could be subjected to the same disorders affecting other synovial joints, including RA. The most common clinical findings are pain in the tempromandibular joint area and tenderness of the masticatory muscles, joint sounds and limited joint function. Research Diagnostic Criteria for tempromandibular joint Disorders has been widely used as a standardized methodology of evaluating tempromandibular joint disorders.

**Aims of the study:**

The objective of this study was to determine the level of antibodies to cyclic citrullinated peptide in serum and saliva of patients with Rheumatoid Arthritis and compare the results with those of healthy control subjects. In addition, evaluate the prevalence of tempromandibular joint involvement among Rheumatoid Arthritis patients.

**Subjects, Materials and Methods:**

Sixty nine individuals (69) were enrolled in this study, forty nine (49) of them were patients diagnosed with Rheumatoid Arthritis, and twenty (20) were healthy control subjects whom their age and gender matched those of Rheumatoid Arthritis groups. Serum and saliva samples have been taken from each subject for immunological analysis of Anti-Cyclic Citrullinated Peptides antibodies by ELISA. Each patient with Rheumatoid Arthritis disease was examined by means of Research Diagnostic Criteria for Temporomandibular Disorders for the assessment of temporomandibular joint involvement.

**Results:**

The mean serum level of Anti-Cyclic Citrullinated Peptide antibodies was significantly higher( $p=0.001$ ) in rheumatoid arthritis groups compared with low level found in healthy controls .The mean level of saliva Anti-CCP antibodies was very low in the studied groups compared with serum level , hence, a significant positive correlation between serum and saliva Anti-CCP concentration in the chronic RA patients, but a non-significant correlation between serum and saliva in the newly diagnosed and in healthy control subjects. Frequency of positive serum Anti-CCP antibodies was also higher in rheumatoid arthritis patients compared to healthy controls ( $p=0.000$ ). On the other hand, the frequency of serum Anti-CCP antibodies positivity was higher in chronic rheumatoid arthritis patients than newly RA patients but it did not reach the significance level( $P=0.845$ ).

Temporomandibular joint clinical findings detected in this study were joint and masticatory muscles tenderness, joint sounds, deviation of mouth opening, limited mouth opening and history of lock jaw. They were bilaterally involved except joint sound ; sometimes it was unilateral.

Chronic rheumatoid arthritis patients associated with higher prevalence of temporomandibular joint disorders more than newly diagnosed RA, except for

tenderness of temporalis and lateral pterygoid muscles, lateral poles joint tenderness and limited mouth opening which were prevalent in newly diagnosed RA patients, a non-significant difference was found regarding all these findings when ( $p>0.05$ ), except limited mouth opening ( $p=0.012$ ) was significant.

Positive serum Anti-CCP rheumatoid arthritis patients were associated with higher frequency of tempromandibular joint disorders except for the temporalis muscles, lateral pterygoid muscles tenderness which were prevalent in the negative Anti-CCP RA patients, and equal prevalence of lateral pole and masseter muscle tenderness between positive and negative Anti-CCP rheumatoid arthritis patients, a non-significant difference was found when ( $p>0.05$ ) regarding all these relations.

**Conclusions:**

Anti-Cyclic Citrullinated Peptide antibodies are considered as a biomarker of inflammation and predictive of the disease activity. Tempromandibular joint disorders are frequently involved in rheumatoid arthritis patients. Rheumatoid arthritis patients with positive serum Anti-Cyclic Citrullinated Peptide antibodies associated with higher frequency of tempromandibular joint disorders.