



Evaluation of *Chlamydia Pneumoniae* IgG in a Sample of Rheumatoid Arthritis Patients

DunyaFareed Salloom¹, Sameer Abdul Amir^{1*}, Ali Hafedh Abbas²

¹ Department of Biology , College of Science , University of Baghdad, Baghdad, Iraq

² Biological Tropical Disease Researches Unit , College of Science , University of Baghdad, Baghdad, Iraq

*Sameer_alash@yahoo.com

Abstract

Thirty serum samples of patients suffering from rheumatoid arthritis after screening of rheumatoid factor, C-reactive protein and ESR were collected and including in present study to detect the IgG antibody against *Chlamydia pneumoniae* by ELISA test. The results showed only 2(6%) patients had seropositive of *C. pneumoniae*, this lead to suggest that *C. pneumoniae* may be one of the etiological or trigger factor in patients of rheumatoid arthritis.

Keywords: *Chlamydia pneumoniae* and arthritis, rheumatoid arthritis, Infectious disease.

تقييم أعداد بكتيريا *Chlamydia pneumoniae* نوع IgG في عينة من مرضى التهاب المفاصل الرثوي

دنيا فريد سلوم¹, سمير عبد الأمير^{1*}, علي حافظ عباس²

¹ قسم علوم الحياة، كلية العلوم، جامعة بغداد، بغداد، العراق

² وحدة الأبحاث البايولوجية للمناطق الحارة، كلية العلوم، جامعة بغداد، بغداد، العراق

الخلاصة

شملت الدراسة الحالية 30 عينة مصل لمرضى يعانون من التهاب المفاصل الرثوي، وبعد إجراء الفحوصات منها العامل الرثوي RF وبروتين تفاعل المادة سي CRP ومعدل ترسيب كريات الدم الحمر لغرض التحري عن أعداد IgG العائدة لبكتيريا *Chlamydia pneumoniae* باستخدام طريقة الأليزا. أظهرت النتائج إيجابية المصل لأثنان (6%) من المرضى وهذا يدل على أن بكتيريا *C. pneumoniae* أحد العوامل الممرضة أو الهدف لحدوث مرض التهاب المفاصل الرثوي.

Introduction

Rheumatoid arthritis (RA) is a chronic progressive inflammatory condition that might be infective in origin [1,2].

The patients with RA have been shown to have an increase susceptibility to development of an infection. The exact cause of this increased

risk is unknown, but may be relate to immunological disturbances association with disease or to the immune suppressive effects of agents used in its treatment [3, 4].

Abnormal joints structure may be allowed the microorganisms to escape normal local phagocytosis [5]. *Chlamydia pneumoniae* is a

trigger factor in approximately 10% of patients with acute reactive arthritis [6], *C. pneumoniae* could be found in persisted state in the synovium and that it too may be involved in joint pathogenesis [1, 7, 8].

Chlamydia pneumoniae may play a role in secondary infection of inflamed joint or it may be causal and may be a factor in chronic RA [9, 10, 11]. Also *C. pneumoniae* infection was significantly associated with chronic cardioidisease and other chronic disease and the role of acute to adverse clinical outcome was evident by high percentage of sero-positivity among PCR positives, although INFN- γ alone had a role to play in development of cardiac disease and other chronic inflammation, its values were further enhanced due to recurrent *C. pneumoniae* infection [12]. Another study found that persistently but not transiently elevated *C. pneumoniae* IgA and hHsp60 IgA antibody, especially when present together with an elevated CRP level, predicted inflammation event [13]. Others found that the evidence of association between *C. pneumoniae* IgG seropositivity and risk of future myocardial infraction [14]. And other study found that the age with the serological diagnosis of recent *C. pneumoniae* infection becomes increasingly prone to false – positive results unless sera are routinely absorbed prior to microimmuno - fluorescence IgM testing [15]. *C. pneumoniae* used the immune cells as a carrier for breaching the blood tissue barriers, and potential cause of chronic persistent infections [16]. *C. pneumoniae* infection did not a triggering or progressive effect on the clinical situation of juvenile idiopathic arthritis etiopathogenesis, as a result of multifactorial etiology, therefore PCR are needed to confirm their result [17]. *C. pneumoniae* is frequently present in non-

rheumatic aortic valve stenosis-similarly, the high number of *C. pneumoniae* infections detected in the early lesions of degenerative aortic valve stenosis suggest that this pathogen may play an etiological role in the development of disease [18].

Material and Methods

Thirty patients of RA were examined clinically and screening test like Rheumatoid factor (RF) by latex test from Human Company (Germany), C – reactive protein (CRP) by latex test from Human Company (Germany), and Erythrocyte sedimentation rate (ESR), comparing with twenty apparently healthy persons, anti-*C. pneumoniae* IgG antibody were done for each serum samples by ELISA method according to Euroimmune Company (Germany).

Statistical Analysis

The data are expressed as mean \pm SE, Student T- test was used to determine the significant differences between studied groups by using computer program SPSS version 13.0, statistical significant was consider at $P \leq 0.05$.

Results and Discussion

The result of ESR in patients of present study showed significant differences ($P \leq 0.05$). ESR in patients group was 50 ± 0.2 mm/hr. while in control group was 7 ± 0.1 mm/hr..

The results of CRP and RF which recorded positive result in all patients. Anti- *Chlamydia pneumoniae* IgG antibody was 2(6%) in RA patients, while negative in healthy group, this lead to suggest that *C. pneumoniae* can be one of the etiological agents in RA patients, as shown in Table 1.

Table 1- Demographic study in RA patients and control groups

Test	Patients group	Control group	Probability
ESR	50 ± 0.2	7 ± 0.1	$P < 0.05$
CRP	100%	0 %	$P < 0.05$
RF	100%	0 %	$P < 0.05$
Anti- <i>C. pneumoniae</i> IgG antibody	6 %	0 %	$P < 0.05$

Another study demonstrated that patients with RA may have lower resistance to infections and RA patients which received corticosteroids did have a higher incidence of infection [19].

There are several factors include marker disease severity, comorbidities, leukopenia, increasing age and corticosteroid therapy to show the relationship between infection and RA and may help to prospectively identify high risk patients, facilitating extra vigilance and implementation of preventive strategies in RA patients [20, 21]. Another demonstrated that the etiology of chronic immuno – inflammatory disease including rheumatoid arthritis (RA), multiple sclerosis (MS), systemic lupus erythmatosus (SLE) and althero sclerosis, had multiple factors are involved in the development of such pathogens, including genetic and environmental factor. The etiology of immuno-inflammatory disease and the possibility of a persistant antigenic stimulus arising from infection cannot confirmed. Ath the cellular level, chronic infection is characterized by infiltration of immuno-inflammatory cell into the target tissue which mostly precedes tissue damage [22]. A recent advance in the modification and standardization of polymerase chain reaction techniques give promise to identify *Chlamydia* move frequently from joint. The role of HLA-B27 had a role in pathogenesis of disease. HLA-B27 should be considered a risk factor for chronic disease [23].

The results of present study lead to suggest that *C. pneumoniae* may be a risk or trigging factor in patients with Rheumatoid arthritis.

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