Determination The Levels Of C-Reactive Protein In Rheumatoid Arthritis Patients In Babylon Province/Iraq.

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الخلاصة

التفاعلات المناعية والالتهابية تلعب دور حيوي في بداية وإدامة التهاب المفاصل الرثوي دراستنا هي محاوله لقياس مستوى الأجسام المضادة الرثويه الموجودة في الدم و معايرة مستوى البروتين النشط كعلامة مع التهاب المفاصل الرثوي أظهرت(89) حاله التهاب المفاصل الرثوي تراوحت أعمارهم (9-68) لكلا الجنسين. كما شملت الدراسة (25) شخص غير مصاب كضابط للسيطرة.

Humatex RF Kitأستعمل في تشخيص العامل المصلي الرثوي.

Humatex CRPKitأستعمل في تشخيص البروتين النشط الذي هو اختبار تلا زني سريع.

كانت نتائج البروتين النشط 89/84 من الحالات في التهاب المفاصل الرثوي.

Abstract

Immunological and Inflammatory reaction play a pivotal role in the initiation and perpetuation of rheumatoid arthritis .The present study is an attempt to measures the level of the rheumatoid factor antibody and to estimate the level of c-reactive protein in blood as a marker for inflammation in patients with rheumatoid arthritis in Babylon government .

A total of (89) cases presenting rheumatoid arthritis with age range (9-68)years old of both sex and (25)person healthy controls were included in this study . Serum RF was detected using(Humatex RF kit) and c - reactive protein was detected using(Humatex CRP kit) which is a rapid agglutination test .CRP test was found to be positive in 84/89 cases of RA .

Introduction

Rheumatiod arthritis (RA)is a chronic disease characterized by synovial inflammation and subsequent tissue damage(1)also functional decline unless early treatment occurs (2,3).It is associated with reduced life expectancy and is a major cause of chronic disability and handicap. Hypertrophy and inflammation of the soft tissues around synovial joints is the common phenomenon occurring in RA .The etiology of RA is not known but it is classified as one of the autoimmune disease (4).

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There is a prominent immunological dysfunction in the joints and many other tissue by accumulation of chronic inflammatory cells including Tand B lymphocytes ,monocytes and macrophages.
Another potential marker for increased risk of RA may be C-reactive protein (CRP),since CRP is a sensitive marker of systemic inflammation and is elevated in patients with RA (5,6).

Materials and methods

A total of (89)patients presenting rheumatoid arthritis attending to rheumatology department in Marjan teaching hospital their age ranging from 9 years up to 68 years from January 2007 to March2009 . The diagnosis of the rheumatoid arthritis was established by clinical analysis and rheumatoid factor test. Also 25 healthy individuals with no known history of any disease were examined clinically and information pertaining to age, sex were involved in this work as control . Blood samples (3 ml)were collected from both controls and patients for the estimation of rheumatoid factors antibody titer and serum c-reactive protein.

C- reactive protein detection

For detection of the C-reactive protein in serum (Humatex CRP KIT) is based on the immunological reaction between human c-reactive protein (CRP)of a patients specimen or controls sera and the corresponding antihuman CRP antibodies bound to latex particles. The positive reaction is indicated by a distinctly visible agglutination of the latex particles in the test cell on the slide. Humatex C reactive protein has detection limit 6 mg/l of the CRP in the patient serum. The test is considered as positive when the CRP serum concentration is above 6 mg/l and negative when it is 6 mg/l or below.

Serum rheumatoid factors

Humatex RF is based upon the agglutination reaction between rheumatoid factors (RF)of patients specimen or control serum and human immunoglobulin G(IgG) coated onto polystyrene latex particles.
The positive reaction is indicated by a distinctly visible agglutination of the latex particles in the test cell of the slide.

Statistical analysis

The data of the study were subjected to the statistical analysis and expressed as mean ± standard deviation. Statistical comparison were performed by student t-test (7).

Results

Detailed clinical examination were performed by the rheumatologist of Marjan teaching hospital and (89) patients with confirmed diagnosis of rheumatoid arthritis included in the study. Serum CRP were determined and are presented in table (1-4).

Age and sex

In the present study, patients of rheumatoid arthritis found to be belonged the age range of (9-68) years. Among 89 patients of rheumatoid arthritis 17 patients were males and 72 were females as shown in table 1.

The mean ± SD of age in males (36.89± 14.6) years and females was (35.11± 11.21) years and mean ± SD of age in control group(33.16±12.0ion7)years. There is no significant difference between male and female according to age group in patient and control group P>o.o5.

C-reactive protein levels

CRP levels estimated in the RA patients and controls are presented in table (2 and 3) .In the present study 84/89 cases of RA were found to be positive to CRP while al of controls were negative for the test. Serum dilution were performed to detect the titer of CRP in all positive cases.

Rheumatoid factors levels

RF levels estimated in the RA patients and controls are present in The table (4).

Table -1: Sex and age of rheumatoid arthritis patients.

No of cases of rheumatoid arthritis	Sex	Mean ± standard deviation
17	Male	36.89± 14.6
72	female	35.11± 11.21

Table -2: Serum C-reactive protein in patients with rheumatoid arthritis and controls.

Groups	No. of cases	No of cases positive for CRP
Rheumatoid arthritis patients	89	84
Controls	25	negative

Table -3: Semi quantitative analysis of C-reactive protein levels of patients with rheumatoid arthritis.

Dilution	+ ve for CRP No =84	Titer of CRP
1:2	34	12
1:4	25	24
1:8	16	48
1:16	9	96

Table - 4:Semi quantitative analysis of rheumatoid factors levels (IU/ML).

Dilution	+ve for RF No=89	Titer of RF
1:2	37	24
1:4	27	48
1:8	10	96
1:16	10	192
1:32	5	384

Discussion

The disease activity in RA is an expression of a cascade of immunological and inflammatory reaction Probably initiated by an unknown stimulus. Recent evidence in various fields has consistently indicated that T-cells play a key role in initiating and perpetuating the inflammation .The prominence of T-cells monocyte /macrophages in rheumatoid arthritis synovium suggests that T cells may localize and amplify the effector functions of monocyte /macrophages in rheumatoid Arthritis disease (8).

T cells activated by dendertic cells or inflammatory cytokine ,in turn activate monocytes /macrophages, endothelial cells, smooth muscle and fibroblasts to produce proinflammatory cytokines(tumor necrosis factor alpha, interleukin -6),chemokines, tissue growth factor, the main inhibitor of coagulation cascade in

vivo and finally matrix metaloprotinases responsible for tissue distraction (9).

Inflammatory process play a pivotal role in pathogenesis of rheumatoid arthritis .The production of CRP in the liver is triggered by various proinflammmatory cytokines derived either from monocyte and/or macrophages. The proinflammatory response of results in the increased secretion of interleukin- 1beta and tumor necrosis factor-α which then results in the release of messenger cytokines, interleukin-6 which stimulate the liver to secrete CRP, high levels of IL -6 have been reported in RA serum and synovial tissue(10) .

It was though as a by standard marker of inflammation ,without a direct role in the inflammatory process .Recent studies suggest that CRP may also contribute directly to the pro inflammatory state .

CRP stimulates monocyte reales of inflammatory cytokines such as IL-1B,IL-6 and TNF-α and may also directly act as a pro inflammatory stimulus to phagocytic cells (11,12,13) .

In the present study the levels of c-reactive protein were significantly high in patients compared to controls similarly(14,15) also observed high values of CRP indicative of active inflammation in RA patients.

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