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Determination of Anti cyclic- citrullinated peptide and rheumatoid factor antibodies levels in patients suffering from rheumatoid arthritis in Al- Najaf Province

Alaa Hashim Abd-Ali[1], Taghreed Dhiaa Aljazaeri[2], Ahmed Abbas Hassan[3] and Doaa Hashim Jawad[4]

[1]M. Sc. Medical Laboratory Technology/Immunology, Department of Community Health/College of Health and Medical Technology/Kufa
[2]PhD. MD. Immunologist/ Al-Sader Hospital Lab./ Al-Najaf Province/ Iraq
[3]M. Sc. Medical Laboratory Technology/Immunology, Department of Medical Analysis/College of Health and Medical Technology/Kufa
[4]B. Sc. Biology/Karbalaa University/Iraq

ABSTRACT

To identify diagnostic utilities of Anti citrullinated protein (A-CCP) and Rheumatoid factor (RF) & ESR are autoantibodies (Abs directed against an individual's own, Analytical study. The questioner reported for 50 patients with RA were collected from Department of Rheumatology¸ AL-Sader Teaching Hospital. serum levels of A-CCP Abs & RF were determinated by enzyme-linked immunosorbent assay, level of Erythrocyte sedimentation Rate (ESR) were determined by westergreen method. Distribution of RA occur in females more than male (80%) & (20%) respectively according to patients group. The patients divided according to age for three group (<30)¸ (30-50) & (>50). The percent for these group (16%)¸ (52%) & (32%). Among the 50 patients with RA¸ CCP¸ ESR. 49 patients (98%) tested positive for A-CCP antibodies¸ and 22 patients (44%) tested positive for RF. and 37 patients(74%) tested increasing levels for ESR in RA patients. The mean value of A-CCP & ESR show highly significance- (P<0·05) while the RF serum levels increase significantly. With its high sensitivity and specificity¸ the A-CCP antibodies assay is a useful test for diagnosing RA. However, the use of A-CCP antibodies and RF in combination further increase the diagnostic value for RA.

Keyword: Rheumatoid arthritis, Anti- Anti citrullinated protein, Rheumatoid factor.

INTRODUCTION

Rheumatoid arthritis (RA) is an interminable fiery issue that is described by polyarthritis with often progressive joint harm and disability, immunological anomalies, systemic inflammation, expanded co-morbidity, and pre-mature mortality. It influences 1% of the adult population worldwide furthermore happens among one in a thousand kids as adolescent RA. RA is a great deal more normal in women and influences women 2-3 times more frequently than men, and during pregnancy 70% of women suffering from RA experience reduction, with flare-ups after birth[1]. The etiology of RA is not referred to, but rather it is classified as one of the immune system diseases[2]. It is connected with reduced life expectancy and a major of chronic incapacity and incapacitate, and conditions turn out to be more dangerous with time. Numerous studies have demonstrated that development treatment including the utilization of right on time ,forceful treatment, and the introduction of anti-cytokines agent have enhanced patient's personal satisfaction, facilitated clinical manifestations, retarded the progession of joint decimation ,and deferred disability[3]. Anti citrullinated protein antibodies (ACPAs) are autoantibodies (antibodies directed against an

individual's own proteins) that are directed against peptides and proteins that are citrullinated. They are available in the greater part of patients with rheumatoid joint pain. Clinically, cyclic citrullinated peptides (CCP) are frequently used to distinguish these antibodies with high affectability in patient serum or plasma (then referred to as anti–citrullinated peptide antibodies). One of the initially recognized antigens for these antibodies is citrullinated filaggrin[4]. Truly, the same antibody specificity has been described as anti-keratin antibodies (AKA) and anti-perinuclear factor (APF) [5].

RF is an immunizer coordinated against the Fc portion of IgG molecules [6] and found in each immunoglobulin subclass (IgM, IgA and IgG)[7]. The specificity of RF in RA is low (70-80%) [8,9]. The Fc part of IgG molecules testing for the mix of anti-CCP antibodies and IgM RF might be better to exclude the finding of RA than is achievable by testing for either immune response alone[10].

Aims of the study:
1-To evaluate the prevalence of Rheumatoid Arthritis according to gender in Al Najaf City.
2- To evaluate the Anti-citrullinated peptide antibody level in Patients with Rheumatoid Arthritis.
3- To compare the accuracy of Anti-citrullinated peptide antibody and rheumatoid factors in patients suffering from Rheumatoid Arthritis.

MATERIALS AND METHODS

Selection of patients
Amid the period 1/September/2015 to 1/walk/2016, fifty patients with Rheumatoid joint pain (40 female and 10 male) with ages ranged between (21-70) years were taken from (Al-Sadder Medical City/Najaf).

Control bunch comprised of 20 solid individuals who were free from signs and side effects of RA who coordinated in age and gender with patients, and had no history for any joint pain issues.

Sample collection and assay procedure
Blood test (5ml) were gathered and left at room temperature and then centrifuge for 15 min. at (3000 rpm). Serum was then isolated and store until time of examination. Estimation of ELISA kit Anti CC-P ELISA kit (Aeskulisa/China) ,RF ELISA Kit (Euroimmune/Germany) , in serum utilizing industrially accessible and performed as suggested in leaflet with kit. The level of erythrocyte sedimentation rate (ESR)were controlled by westergreen strategy.

Statistical analysis:
Results are communicated as mean ± standard mistake (SE), understudy t-test, ANOVA and Pearson correlation were utilized to analyze results by utilizing SPSS variant 22, p-value ≤ 0.05 was considered significant[11].

RESULTS

Amid the study period ,50 patients with rheumatoid joint pain, 10(20%) were male and 40(80%)were female with a range of (21-70) years . The age group divided into three gathering <30(16%) , 30-50(52%) , and >50(32%) . Likewise the patient according severity of the disease as the accompanying : Mild 10(20%) , moderate 12(24%) and sever 28(56%).

Table(1): Information for Rheumatoid arthritis patient.

characteristic	Number	Prevalence%
Number of patients	50	100%
male	10	20%
female	40	80%
Age(year)		
medium		
range	21-70	
30>	8	16%
50-30	26	52%
50<	16	32%
Severity of disease		
mild	10	20%
moderate	12	24%
severe	28	56%

A summary of he patients clinical symptomology that was collected from the questionnaire is presented in table(2) join pain , joint swelling , stiffness ,and fever were predominant symptoms, as shown in table (2).

Table(2): Distribution of Rheumatic patient according to clinical symptoms

Clinical symptom	Number	Prevalence %
Joint pain	50	100%
Joint swelling	31	62%
Joint stiffness	25	50%
fever	28	56%

The Anti-CCP and RF and ESR mean value 701.09 , 21.03 and 33.22 respectively ,while control group the Anti-CCP , RF and ESR , mean value were shown 2.12 , 6.54 and 17.09 respectively ,as shown in table (3):

Table (3): Mean value of serum concentration A-CCP, RF, ESR in both study groups

case	Patient Mean ± std.Deviation No(50)	Control Mean ±std.Deviation No(20)	F	P .value
ACC-P	701.09 ± 711.31	2.12 ± 1.51	19.143	0.000
RF	21.03 ± 36.4	6.54 ± 17.68	5.760	0.019
ESR	33.22 ± 14.477	17.09 ± 11.002	20.115	0.000

The distribution of Anti-CCP, RF, and ESR according to age, gender ,disease duration and disease stage respectively as shown in table (4,5,6,7):

Table (4):Mean value of serum concentration for study parameter according to age groups

Parameter	30< Mean ± Std. Deviation No(8)	30_50 Mean ± Std.Deviation No(26)	>50 Mean ± Std. Deviation NO(16)	P. value
ACCP	689·05±977·04	634·5±502·4	808·3±820·7	0·053
RF	25·65±62·59	21·41±31·30	17·56±21·19	0·429
ESR	26·40 ±18·5	33·62±12·88	36·88±13·36	0·824

Table (5): Man value of serum concentration for study parameter according to gender

Parameter	Male Mean ± Std.Deviation No(10)	Female Mean ± Std. Deviation No(40)	p· value
ACCP	471·6 ± 307·4	758·4±772·6	0·757
RF	2· 74 ± 2· 76	25·60± 39·44	0·862
ESR	34·10± 11·06	33·00± 15·32	0·198

Table (6): Mean value of serum concentration for study parameter according to disease duration

Parameter	1-5(year) Mean ± std.Deviation No(41)	5(year)> Mean ± std.Deviation No(9)	p· value
ACCP	598·09 ± 646·23	1066· 25 ± 839· 18	0· 353
RF	18·84 ± 37·86	28· 79 ± 30· 98	0· 271
ESR	32· 97 ± 15· 04	34· 09 ± 12· 84	0· 800

Table(7):Mean value of serum concentration for study parameter according to disease stage

Parameter	Mild Mean ± Std. Deviation No(10)	Moderate Mean ± Std.Deviation No(12)	Severe Mean ± Std.Deviation No(28)	p· value
ACCP	575·5 ± 405·2	945·8 ± 955·4	629·7 ± 658·8	0·258
RF	23·69± 37·24	33·69± 54·86	13·94 ± 22·20	0·075
ESR	31·30± 13·06	32·08 ± 13·33	34·48± 15·810	0·832

The level of Anti CC-P were correlated with RF and ESR with p.value(0.000 , 0.001) respectively . Also RF correlate with ESR in P.value (0.032) as shown in table (8).

Table (8): correlation among study parameter

parameter	R	P· value
ACCP VS RF	0·589	0 ·000
ACCP VS ESR	0·464	0·001
ESR VS RF	0·304	0·032

Table(9): Determination of rheumatic patient according to positive and negative result in A-CCP and RF

RF	A-CCP	Number	Percent%
Positive	Positive	21	42%
Positive	Negative	1	2%
Negative	Positive	28	56%

DISCUSSION

In the present study , the Anti – CCP is significance as , analytic and prognostic marker for RA has been illustrated broadly in developed world . All the more as of late ,A-CCP antibodies have been distinguished in the of RA patients . these antibodies have shown high diagnostic specificity and generally high sensitivity[11,12]. Ordinarily , the serology test routinely utilized as a part of RA is the determination of serum RF. However , it has minimal predictive quality in the all-inclusive community ,since the general disease prevalence is moderately low. The more particular auto antibodies for the conclusion of RA ,A-CCP antibodies ,were found in 1964[13]. A synopsis of the patients' clinical symptomatology that was gathered from the questionnaire is displayed in table (2). Joint agony, swelling and solidness were the predominant symptoms. the disease essentially influenced the little joints of the hands, however every one of the joints in the body were influenced to some extent[14]. In this study anti-CCP and RF were positivities and the term of the sickness were autonomous indicators of erosive advancement ,and combination of these antibodies had he most elevated for erosive damage.

Most study agree that a positive RF is vital indicator for join damage throughout the years of disease. Jansen et al[15] presumed that radiographic progression at one year was anticipated by positive RF. Similar to previous studies, our outcome recommended the prognostic estimation of RF. It create the impression that anti-CCP antibodies have prognostic importance like RF. Vencovsky et al[16] found that anti-CCP positively was better than RF at predicting progression of Larsen score more than two years .Also, in imminent investigation of 242 patients with early RA followed up for a long time he anti-CCP immune response result correlated with RF ,however were better than RF as indicator of more aggressive disease. At long last this study demonstrated that the nearness of anti-CCP and RF antibodies was connected with high likelihood of erosive illness. The joined utilization of RF and anti-CCP had more noteworthy specificity for erosive damage than anti-CCP or RF alone.

CONCLUSION

This study demonstrated that A-CCP antibodies to be sure are great serological markers for RA. Anti-CCP antibodies are appropriate as a front line diagnostic test for RA and particularly early RA. In RF seronegative patients, anti-CCP can be useful in affirming the finding of RA. In any case, this doesn't mean that A-CCP can supplant RF in diagnostic and prognostic testing for RA. We offer a combination of anti-CCP and RF tests instead of A-CCP or RF to get the best results in RA determination.

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