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## **The sensitivity and specificity testes for diagnosis of rheumatoid arthritis/ Jordan**

**Dr. Nawal S. Faris**

Department of Allied Medical Sciences, Middle East university  
Corresponding author email: [n\\_faris@meu.edu.jo](mailto:n_faris@meu.edu.jo)

**Dr. Mohammad M Hadieh**

Medicinal and Pharmaceutical Chemistry, Jordan University and Technology

**Dr. Omar M Hadieh**

Medicinal and Pharmaceutical Chemistry, Jordan University and Technology

**Abstract**--Background: Prognosis, treatment, and even early detection of rheumatoid arthritis may all be effectively tracked. Serological tests may be used to validate clinically suspected preliminary diagnoses of rheumatic disorders, track the effectiveness of treatment, and predict the prognosis of autoimmune diseases. for CRP, anti-citrullinated peptide antibodies, anti-streptolysine O, acute phase proteins, rheumatoid factor, and CRP. Aims of the study: focused on diagnostic designs that tested the sensitivity and specificity of diagnoses. such as ANA, ACCP, ASO, and CRP Laboratory Tests of Rheumatoid arthritis. Methods: ELIZA tests were used to refer 79 individuals to the Immunology department, specifically the rheumatic ward. Statistical test: Statically analysis: was carried out using ANOVA. Results: Most patients with RA tested positive for anti-CCP. 86% of RA patients have positive test findings. According to ASO, there may be an increase in RF without an increase in ASO in some circumstances. This is because there may be additional health issues contributing to the auto immune disease. Other results may also indicate an increase in ASO and CRP without an increase in RF. Conclusions: We came to the conclusion that ACCP antibodies and CRP are the most sensitive and specific tests for the diagnosis of RA.

**Keywords**--Rheumatoid arthritis, ANA, ACCP, ASO and CRP Laboratory Tests.

### **Introduction**

In addition to your joints, rheumatoid arthritis can affect other parts of your body. The illness can affect the skin, eyes, lungs, heart, and veins in some persons, among

a variety of other body parts. Rheumatoid joint pain develops when your immune system unintentionally targets the tissues in your own body, which is an invulnerable structural problem. [1]. Your little joints, especially those that connect your fingers to your hands and your toes to your feet, will be most severely affected by early rheumatoid joint pain.. . Most symptoms expand to other body parts as the illness worsens, including the wrists, knees, lower legs, elbows, hips, and shoulders. Symptoms typically manifest in your body's comparable joints on the various sides [2]. Serological tests may continue to provide the distinct evidence of rheumatic conditions helpful in deciding clinically necessary investigation, monitoring the treatment response, and predicting invulnerable system illnesses. [3]. Rheumatoid factor, citrullinated peptide antibodies, antinuclear antibodies, and CR protein are utilized in the early stages of the disease to diagnose RA patients. [4]. These biomarkers should, however, be used in addition to physical examination [5]. In the event that it is highly sensitive, the potential finding may be prevented if a negative event occurs.[6]

### Material and Methods

A total of 79 people, ages 3 to 78, were studied from September 2019 to June 2020; 62 of them were females (78.5%) and 17 were men (21.5%); the female to male ratio was 3.6. The study involved 79 individuals who were referred to the Immunology department of a special hospital in Jordan's capital city of Amman. sedimentation of erythrocytes in the periphery. immunofluorescence. Human Anti-CCP ELISA. RA sufferers. When a patient was diagnosed with RF, blood samples for ASO and CRP were taken in test tubes and analyzed by the Architect C4000 (ABOTT).

### Results

The study involved 79 patients who were referred to the Immunology department of a specialized hospital in Jordan's capital city of Amman. Table 1

Table 1: Represent the proportion of men and women who participated in this study

|        | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------|-----------|---------|---------------|--------------------|
| Female | 62        | 78      | 64            | 64                 |
| Male   | 17        | 21.5    | 36            | 36                 |
| Total  | 79        | 100.0   | 100           | 100.0              |

**This table 2:** Indicate the outcomes of RF, ASO, ANA, and Anticcp. .1 , RF <20 IU/ml (Negative), ASO<200 IU/ml (Negative ), Negative: < 30 U/ml Positive: ≥ 30 U/ml

| Patient | Sex | Age (YEARS) | RF    | ASO  | ANA    | CRP   | Anticcp |
|---------|-----|-------------|-------|------|--------|-------|---------|
| 1       | F   | 5           | 44    | 454  | 1:640  | 150.7 | +ve     |
| 2       | F   | 11          | 33    | 434  | 1:640  | 45.4  | +ve     |
| 3       | M   | 7           | 60    | 426  | 1:640  | 3.6   | +ve     |
| 4       | M   | 6           | 89    | 2429 | 1:640  | 0.5   | +ve     |
| 5       | M   | 8           | 20    | 472  | 1:320  | 0.8   | +ve     |
| 6       | F   | 14          | 37    | 391  | 1:320  | 63.9  | +ve     |
| 7       | M   | 5           | 20    | 568  | 1:320  | 1.6   | +ve     |
| 8       | M   | 6           | 56    | 1516 | 1:640  | 0.7   | +ve     |
| 9       | M   | 6           | 55    | 832  | 1:640  | 2.5   | +ve     |
| 10      | M   | 27          | 150   | 200  | 1:320  | 3     | +ve     |
| 11      | F   | 50          | 47,3  | 245  | 1:640  | 41    | +ve     |
| 12      | F   | 54          | 67    | 354  | 1:640  | 55.1  | +ve     |
| 13      | F   | 69          | 372   | <200 | 1:640  | 15.2  | +ve     |
| 14      | F   | 52          | 200   | <200 | 1:320  | 9.7   | +ve     |
| 15      | F   | 41          | 175   | 344  | 1:640  | 78.1  | +ve     |
| 16      | F   | 63          | 21    | <200 | ≤1:160 | 83.2  | -ve     |
| 17      | F   | 46          | 12    | 256  | 1:160  | 8.6   | -ve     |
| 18      | F   | 71          | <20   | <200 | ≤1:160 | 61.6  | -ve     |
| 19      | F   | 64          | 56    | <200 | 1:160  | 15.8  | -ve     |
| 20      | M   | 23          | 100   | 335  | 1:320  | 1     | +ve     |
| 21      | F   | 56          | 66    | 250  | 1:640  | 7.4   | +ve     |
| 22      | F   | 46          | 41    | <200 | 1:320  | 1108  | +ve     |
| 23      | F   | 56          | 142.7 | 305  | 1:640  | 5.1   | +ve     |
| 24      | F   | 45          | >1600 | 200  | 1:1282 | 5.3   | +ve     |
| 25      | F   | 32          | >20   | 400  | 1:320  | 85.4  | +ve     |
| 26      | F   | 7           | <20   | 556  | ≤160   | 113.8 | -ve     |
| 27      | M   | 12          | 25    | 290  | 1:160  | 11    | -ve     |
| 28      | F   | 11          | <20   | 243  | ≤1:160 | 8.3   | -ve     |
| 29      | F   | 35          | 65    | <200 | 1:640  | 5.4   | +ve     |
| 30      | M   | 6           | >20   | 400  | 1:160  | 9.2   | -ve     |
| 31      | F   | 63          | 243   | <200 | 1:640  | 9.2   | +ve     |
| 32      | F   | 55          | 80    | <200 | 1:320  | 0.4   | -ve     |
| 33      | M   | 5           | 26    | 1495 | 1:160  | 13.8  | -ve     |
| 34      | F   | 7           | 22    | 930  | ≤1:160 | 35.6  | -ve     |
| 35      | M   | 8           | <20   | 523  | ≤1:160 | 67.8  | -ve     |
| 36      | M   | 3           | <20   | 220  | ≤1:160 | 2.1   | -ve     |
| 37      | M   | 11          | 21    | 780  | ≤1:160 | 19    | -ve     |
| 38      | F   | 25          | <20   | 340  | ≤1:160 | 46.7  | -ve     |
| 39      | F   | 55          | 780   | <200 | 1:1282 | 54.2  | +ve     |
| 40      | F   | 9           | 32    | 2687 | 1:320  | 9.3   | +ve     |
| 41      | F   | 47          | 77    | <200 | 1:640  | 31.7  | +ve     |
| 42      | M   | 7           | 20    | 1002 | ≤1:160 | 7.9   | -ve     |

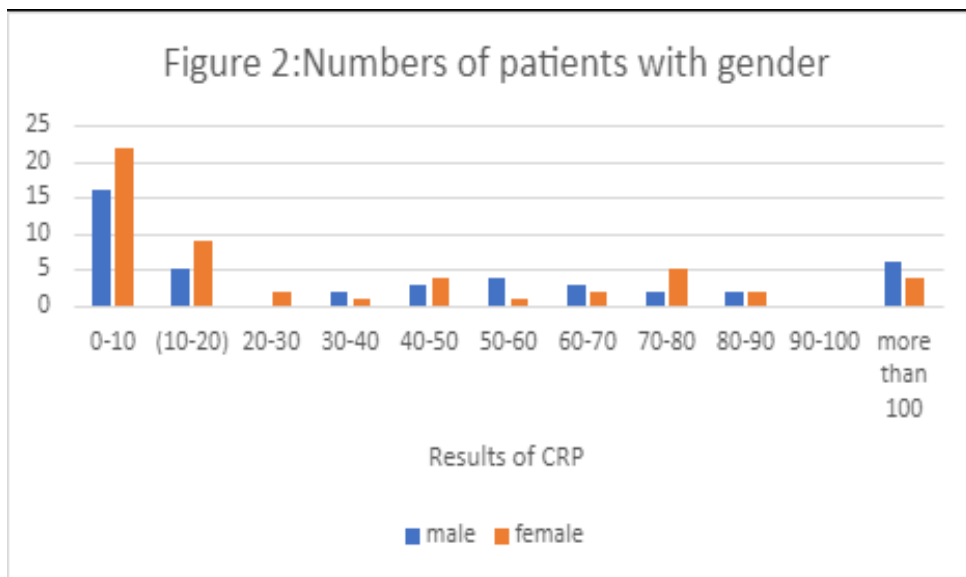
| Patient | Sex | Age (YEARS) | RF  | ASO  | ANA    | CRP   | Anticcp |
|---------|-----|-------------|-----|------|--------|-------|---------|
| 43      | M   | 12          | 33  | 1968 | 1:320  | 7.8   | +ve     |
| 44      | M   | 7           | 29  | 965  | 1:320  | 9.3   | +ve     |
| 45      | F   | 5           | 44  | 2389 | I:640  | 49.8  | +ve     |
| 46      | M   | 10          | <20 | 760  | ≤1:160 | 18.3  | -ve     |
| 47      | F   | 44          | 587 | 123  | 1:1282 | 121.3 | +ve     |
| 48      | M   | 4           | <20 | 802  | ≤1:160 | 9.3   | -ve     |
| 49      | M   | 78          | 547 | <200 | 1:1282 | 17.4  | +ve     |
| 50      | F   | 13          | 27  | 900  | 1:160  | 43.7  | +ve     |

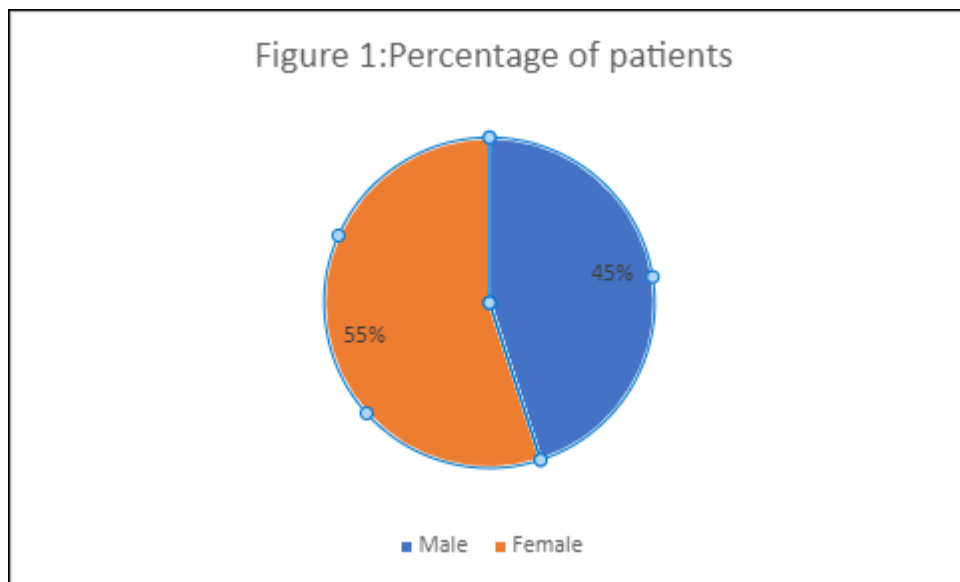
Table 3: symbolize Paired Samples Statistics

|                | Mean    | Std. Deviation | Std. Error Mean |
|----------------|---------|----------------|-----------------|
| <b>ANA</b>     | 78.8354 | 125.52642      | 14.122B3        |
| <b>Anticcp</b> | 49.2304 | 130.35587      | 14.66618        |

Table 4: Represent paired Samples Correlations

|                      | Correlation | Sig.  | 95% Confidence Interval Of the Difference |
|----------------------|-------------|-------|-------------------------------------------|
|                      |             |       | Lower upper                               |
| <b>ANA a Anticcp</b> | .272        | 0.015 | -4.97928 64.18941                         |





### Discussion

In this study, patients were diagnosed to determine whether there was a correlation between ASO, RF, and CRP. We discovered that in some cases, there was a significant increase in RF and ASO, indicating that the body's antibody against streptococcal bacteria can cause RF and other complications. However, in other cases, there was an increase in RF without an increase in ASO, reflecting the presence of other health issues that contribute to this auto immune disease. 86% of those with rheumatoid arthritis have rheumatoid factors in their sera. However, since it can be present in healthy people as well, it is not particular to RA. Rheumatoid factor, citrullinated peptide antibodies, antinuclear antibodies, and CR protein are utilized in the early stages of the disease to diagnose RA patients.

The CRP test is particularly helpful for persons who have a 10% to 20% likelihood of having a heart attack within the next 10 years, as we also notice that female RA patients have higher CRP levels than male patients. The risk level here is intermediate. The benefit of CCP antibodies is that they can diagnose rheumatoid joint discomfort more accurately than just rheumatoid factors can. With a large prophetic incentive for anticipated illness development, against CCP is frequently discovered in an early stage of the disease.

### Conclusion

We conclude that 86% of RA test results are positive for RA patients. According to ASO, there may be a rise in RF without an increase in ASO in specific circumstances. this is due to the fact that other medical conditions can also contribute to auto immune disease and that some results show a rise in ASO without an increase in R. RA Patients typically have CRP levels that are abnormal (more than 10 mg/l), which are related to the severity of inflammation and vary

by gender. CRP and ACPA antibodies are thus the RA diagnostic tests with the highest sensitivity and specificity.

**Abbreviations:**

Anti-citrullinated peptide antibodies

ASO: Antistreptolysine O

CRP: C reactive protein

ANA: Antinuclear antibodies

ESR: Erythrocyte sedimentation rate

ELISA: Enzymes link immune assay

**Conflict of interests:** no conflict of interest to declare

**Ethical Considerations:** Ethical approval was obtained from the Ethical committee of the institute and informed consent was obtained from patients. Approval attached

**Consent for publication:** Publication approval attached

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