

## CLINICAL PROFILE AND MEDICAL MANAGEMENT OF RHEUMATOID ARTHRITIS FOR NORTH AFRICAN WOMEN: A RETROSPECTIVE ANALYTICAL STUDY

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### INTRODUCTION

Rheumatoid arthritis (RA) is the most common chronic inflammatory rheumatic disease. Due to its significant social and economic impact, RA is a real public health problem (Alamanos, Voulgari, et Drosos 2006). It is an inflammatory autoimmune disease, causing destruction of the joints, it has a multifactorial origin, characterized by a feminine predominance (Whalley et al. 1997). The clinical manifestations of rheumatoid arthritis in developed countries was different from those in developing countries (Teh et Wong 2008).

Therapeutic management of RA has changed significantly over the past 15 years due to more effective treatments and new concepts (Smolen et al. 2007). Patients with rheumatoid arthritis often respond well to Methotrexate treatment (O'Dell et al. 1996). RA is more common among women in Algeria, compared to developed countries (Slimani et al. 2014). For this reason, the aim of our study is to target the medical management, clinical profil; therapeutic characteristics and the activity of RA in women from Western Algeria (North Africa).

### MATERIALS AND METHODS

#### Population:

We conducted an analytical retrospective study on 257 women followed for rheumatoid arthritis at the level of Internal Medicine and rehabilitation departments of "Dr. Hassani Abdelkader" Sidibel abbes University Hospital along the period of January 2016 - April 2019.

The diagnosis of RA was based on American College of Rheumatology (ACR) Criteria 1987. Data collection was carried out using medical records including the following data :age, medical history , joints disorders; disease activity, laboratory assessment and medication .

#### Statistical Analysis:

Concerning the statistical analytical study, data were summarized using rates and cross-tabulations.

Associations between Characteristics of the RA and DAS28 using Pearson's  $\chi^2$ . Results were presented using p value, the level of its significance was limited by the rate of 5 %. All data were processed and analyzed via SPSS 22.0 (Statistical Package for the Social Sciences, IBM Corporation; Chicago, IL. August 2013).

### RESULTS AND DISCUSSIONS

A total of 257 women were identified during the period of January 2015 - April 2019, The mean disease duration was 4.152 years.

The median age was 52.584±12.3013 ranging from 14 to 80 years old, the most common involved age group was 52-72 years (55.3%), followed by 37.4 % in the 31-51, 5.4% in the <30 and 1.9% in the >72 years old (Table 1).

Clinical, biological and therapeutic data of ours patients and according DAS 28 are shown in the table 1 and table 2

More than half of our patients were from urban area (73.2%). The most recorded medical histories were high blood pressure (40.1%); type 2 diabetes (15.2%); other autoimmune diseases (4.7%). 45% of patients were in the menopausal stage. (Table 1).

The joints of the hand were the most commonly affected in our study group with a rate of 67.3%, wrists in 61.9 %, knees in 56%, elbows in 36.2%, shoulders in 35.4%, feets in 29.6% and ankles in 13.2% (Table 1).

Concerning disease activity, the most common activity were the moderate one in 54.1%, high activity in 31.5%, low activity in 13.2% and remission in 1.2% (Table 1).

24.5% of patients had articular erosion (Table 01), of which 21.4% had a DAS28 >5 (Figure 1) with a P value <0.001 (Table 2) .

82.5% of patients had an accelerated ESR (Erythrocyte Sedimentation Rate), 80.5% had a positive RF including 43.97 % with a moderate activity (P<0.001), 80.2% had a positive anti-CCP

(anti-Cyclic Citrullinated Peptides ) and 43.58% with a moderate activity ( $P<0.001$ ) (Table 1,2).

Among the used treatments, Methotrexate was the most prescribed to patients with 82.5% of patients, mostly for the patients with a moderate activity ( $3.2<DAS\ 28>5$ ) and high activity ( $DAS\ 28>5$ ) ( $P=0.017$ ). 55.3% were taking a Glucocorticoid and 25.7 % of patients underwent biotherapy, including 13.23% of patients with a  $DAS\ 28>5$  ( $P<0.001$ ) (Table 1, 2).

Table 1: Rheumatoid Arthritis Characteristics

Characteristics (n=257)	N(%) or Mean(Sd)
<b>Age (years)</b>	52.584(12.3013) <sup>2</sup>
<30	14(5.4%) <sup>1</sup>
31-51	96(37.4%) <sup>1</sup>
52-72	142(55.3%) <sup>1</sup>
>72	5(1.9%) <sup>1</sup>
<b>Disease duration (years)</b>	4.152(3.9484) <sup>2</sup>
<b>Area</b>	
Rural	69(26.8%) <sup>1</sup>
Urban	188(73.2%) <sup>1</sup>
<b>Medical history</b>	
High blood pressure	103(40.1%) <sup>1</sup>
Type 2 Diabetes	39(15.2%) <sup>1</sup>
Other autoimmune diseases	12(4.7%) <sup>1</sup>
Lung involvement	4(1.6%) <sup>1</sup>
<b>Menopause</b>	117(45%) <sup>1</sup>
<b>The seat of joint damage</b>	
Hands	173(67.3%) <sup>1</sup>
Wrists	159(61.9%) <sup>1</sup>
Knees	144(56%) <sup>1</sup>
Elbows	93(36.2%) <sup>1</sup>
Shoulders	91(35.4%) <sup>1</sup>
Feet	76(29.6%) <sup>1</sup>
Ankle	34(13.2%) <sup>1</sup>
<b>Erosion</b>	63(24.5%) <sup>1</sup>
<b>Activity of the RA</b>	
Remission	3(1.2%) <sup>1</sup>
Low	34(13.2%) <sup>1</sup>
Moderate	139(54.1%) <sup>1</sup>
High	81(31.5%) <sup>1</sup>
<b>DAS 28</b>	4.5173(1.21527) <sup>2</sup>
<b>Biology</b>	
Accelerated ESR	221(82.5%) <sup>1</sup>
ESR titer (mm/h)	43.693(24.7952) <sup>2</sup>
Positive CRP	169(65.8%) <sup>1</sup>
CRP titer (UI/ml)	19.0345(30.5164) <sup>2</sup>
Positive RF	207(80.5%) <sup>1</sup>
RF titer (UI/ml)	70.1058(79.04593) <sup>2</sup>
Anti-CCP positive	206(80.2%) <sup>1</sup>
Anti-CCP (UL/ml)	188.8339(164.60806) <sup>2</sup>
Anemia	56(21.8%) <sup>1</sup>
<b>Treatment</b>	
Methotrexate	221(82.5%) <sup>1</sup>
Leflunomide (Arava)	40(15.6%) <sup>1</sup>
Salazopyrine	12(4.7%) <sup>1</sup>
Hydroxychloroquine(Plaquenil)	5(1.9%) <sup>1</sup>
Glucocorticoid (Precortyl)	142(55.3%) <sup>1</sup>
Biotherapy	66(25.7%) <sup>1</sup>
<b>1: Number(%); 2: Mean(Sd); RA: Rheumatoid Arthritis; DAS 28: Disease Activity Score 28 ; ESR: Erythrocyte Sedimentation Rate; RF: Rheumatoid factors, Anti-CCP: anti-Cyclic Citrullinated Peptides</b>	

*Rheumatoid arthritis (RA) is a systemic disease of the connective tissue, that most often affects*

women (Kvien et al. 2006). With variable clinical characteristics. Retrospective studies concerning rheumatoid arthritis in western Algeria are very rare.

The aim of this retrospective study was to describe the clinical features of rheumatoid arthritis in women from Western Algeria.

The most affected age group in our study series is the 52-72 year old (55.3%) with a mean age of 52.584.

These data are comparable with those found by (Ghozlan et al. 2018) which found a mean age of 49.6. In the series of (Mb et al. 2013) the mean age of patients was 51.88 and the mean age in the series of (Bodur et al. 2008) was 52.1.

In the series of (Iltchev et al. 2016) there was a frequency of RA in the urban area. Similarly, in our retrospective study, 73.2% of patients were from the urban area.

Concerning the comorbidities, (Jeong et al. 2018) highlighted a percentage of 46.2% and 16.1% of patients suffering from high blood pressure and type 2 diabetes. The study of (Namas et al. 2019) reported a rate of 37.9% of hypertensive patients. 54.1% of patients had high blood pressure in the series study of (Abd ElHafeez et al. 2019). These results are comparable to our findings with 40.1% and 15.2% of hypertensive and diabetic patients respectively.

Different joint lesions were noted in our study, with a frequency in the joints of the hand (67.3%) followed respectively by wrists and knees. This topography is close to that observed by (BILECKOT (R), BILECKOT (R.), et MALONGA (A.C.) 1998). Another series study by (Kobak 2011) and (Sandoughi et al. 2017) has shown that the mostly affected joints were hands' followed by the knees'. the study of (Al-Salem et Al-Awadhi 2004) showed other frequency of same joint damage.

The disease activity was moderate in more than half of our patients ( between 3.2 and 5 with a 54.1% of cases).

These data are similar to those found by (Slimani et al. 2014 and Bodur et al. 2008).

The CRP mean in our series study ( means  $\pm$ SD) was  $19.0345\pm30.5164$  and  $43.693\pm24.7952$  for ESR, These results are very close to those found in the study series of (Ghozlan et al. 2018; Sandoughi et al. 2017 and Slimani et al. 2014).

The RF was positive in 80.5% of patients, it was positive in 43.97% of patients with a DAS 28 between 3.2 and 5 followed by 29.96% of patients with DAS 28 more than 5 ( $P<0.001$ ).

The same results for anti-ccp where found and showed that the anti-ccp was positive in 43.58% of patients with DAS28 between 3.2 and 5 ( $P<0.001$ ). 21.4% of patients had radiologic erosion with a DAS28 between 3.2 and 5 ( $p<0.001$ ), these data are very close to those of (Slimani et al. 2014) and in accordance with those found by (Bodur et al. 2008) and (Sany et al. 2004).

Table 2. Association between Characteristics of the RA and DAS 28

	< 2.6 Remission	2.6-3.2 low	3.2-5 Moderate	5 > Hight	P Value
Number of cases	3 (1.2)	34 (13.2)	139 (54.1)	81 (31.5)	-----
Age					
<30	1 (0.39)	2 (0.78)	2 (0.78)	9 (3.5)	<b>0.003</b>
31-51	1 (0.39)	8 (3.11)	59 (22.96)	28 (10.89)	0.203
52-72	1 (0.39)	24 (9.34)	75 (29.18)	42 (16.34)	0.232
>72	0	0	3 (1.17)	2 (0.78)	0.829
Erosion	0	0	8 (3.11)	55 (21.4)	<b>&lt;.0001</b>
RF positive	1 (0.39)	16 (6.23)	113 (43.97)	77 (29.96)	<b>&lt;.0001</b>
Anti-CCP positive	1 (0.39)	16 (6.23)	112 (43.58)	77 (29.96)	<b>&lt;.0001</b>
Drugs- intake					
Methotrexate	2 (0.78)	24(9.34)	111 (43.19)	75 (29.18)	<b>0.017</b>
Glucocorti-oid	1 (0.39)	18 (7)	72 (28.2)	51 (19.84)	0.351
Biotherapy	0	1 (0.39)	31 (12.6)	34 (13.23)	<b>&lt;.0001</b>
Menopause	1 (0.39)	20 (7.78)	61 (23.47)	35 (13.62)	.403

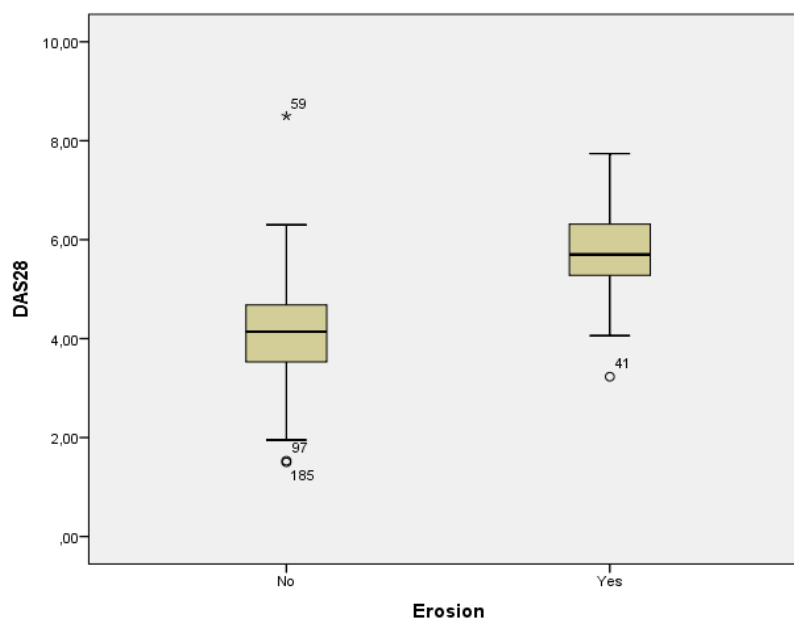


Figure 1. Disease Activity Score 28 (DAS28) according to Erosion

Methotrexate were the most frequent treatments (82.5%) mostly in the moderate activity with 43.19% of cases ( $P=0.017$ ). (Almeida, Almeida, et Bertolo 2014, Alawneh et al. 2014, Pappas et al. 2015 and Tantayakom et al. 2017 ) noted the Methotrexate frequency in their data. 24% were on biotherapy in the series study (Alawneh et al. 2014) , 04% in the (Slimani et al. 2014) data. In our series study we reported that 25.7% of patients were on biotherapy and 13.23% among them with a high activity ( $DAS\ 28 > 5$ ).

### CONCLUSIONS

This study showed for the first time the clinical profil and therapeutic characteristics of rheumatoid arthritis in women from western Algeria.

This study indicates that the disease activity analysis could be a key point in the development of

the activity and also the severity of the pathology in north african women with RA.

Further prospective studies with larger numbers of patients are needed to better understand this disease and to evaluate the effectiveness of treatments.

### ABSTRACT

We aimed to describe the medical management , clinical profil and therapeutic characteristics as well as the activity of Rheumatoid Arthritis in women from Western Algeria. For this reason, We performed a retrospective analytical study based on medical records over 257 women in Western Algeria (North Africa) diagnosed with rheumatoid arthritis at the level of internal medicine and rehabilitation departments of Sidi bel Abbes University Hospital. SPSS 22.0 software was used to calculate the various

statistical tests presented in this survey. the mean age of diagnosis (Mean±SD) was 52.584±12.3013, ranging from 14 to 80 years old. 73.2% of patients were from urban area. Concerning medical histories 40.1% of patients had high blood pressure and type 2 diabetes (15.2%), the hand joints were the most affected in our study, Disease Activity Index 28 (DAS 28) between 3.2 and 5 was noted in more than half of our population, followed by high activity, Rheumatoid factors and Anti-CCP (anti-Cyclic Citrullinated Peptides) was positive in 43.97% and 43.58% of patients with a DAS 28 between 3.2(p<0.0001). Further prospective studies with a larger number of patients are needed to better understand the different acts of this disease.

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