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Rheumatoid Arthritis of Man: A Study of 35 Cases in a Senegalese Hospital

Souhaibou Ndongo*, Abdoulaye Pouye, Lionel Ouedraogo, Emeric Azankpan, Ngoné Diack, Thérèse Moreira Diop

Clinique médicale I-H.A.L.D-Dakar, Dakar étoile, Senegal
Email: *sndongo_medinterne@yahoo.fr

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Abstract

Background: Rheumatoid arthritis is predominant in women. In men certain clinical signs can delay diagnosis. Methods: A cross-section study of the epidemio-clinical and immunobiological features of rheumatoid arthritis in a male, black African population was carried out at the Aristide Le Dantec, University hospital of Dakar. Results: we studied 35 male subjects with rheumatoid arthritis. Their mean age was 42 years and the average time between the onset of symptoms to diagnosis was 44 months. In 70% of these patients, at least one joint deformation was present, most frequently an ulnar deviation of the fingers (34.3%). Extra-articular symptoms were dominated by dry eye syndrome (34%) and anemia (17%). Anemia was significantly less frequent in men than in women. The erythrocyte sedimentation rate was accelerated in 51.4% and C reactive proteins were increased in 92% of patients. The rheumatoid factor was positive in all patients and the anticyclic Citrullinated Peptide (CCP) antibody was positive in 80% of cases. Conclusion: Male rheumatoid arthritis, relatively less studied, was associated with strongly positive immunological markers and a high rate of joint disorders.

Keywords

Rheumatoid Arthritis, Male, Senegal

1. Introduction

Rheumatoid arthritis (RA), the most common chronic, inflammatory and rheumatic disease, has genetic and environmental origins [1]. It occurs in all populations predominantly in women [2]-[4]. In men, atypical symptoms, especially in early stages of the disease, can hinder reliable and rapid diagnosis of RA. This study of 35 cases

*Corresponding author.

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aimed to provide an epidemiological, clinical and immunological description of male RA in a black African population.

2. Patients and Methods

This cross-section study was made on a cohort of 308 patients seen for rheumatoid arthritis in the medical clinic of the university hospital of Aristide Le Dantec in Dakar from 2005 to 2012.

The work focused on male patients satisfying the 1987 diagnostic guidelines of the ACR [5]. Epidemiological and clinical data (duration of the symptoms, description of joint deformations, extra-articular symptoms) as well as biological (blood cells count, erythrocyte sedimentation rate, C-reactive protein) and immunological data (presence of the rheumatoid factor and anti-CCP antibodies) were collected for each patient.

Since quantitative variables did not follow gaussian distributions, they were described with median, 1st quartile and 3rd quartile values. Qualitative variables were defined as the percentage of the population exhibiting each modality of a variable. Quantitative variables were compared using the non-parametric Wilcoxon-Mann-Whitney test. The Chi^2 test, if applicable, was used to compare qualitative variables. If not, the exact test of Fisher was used. In all cases the significance level was set at 5%.

3. Results

35 patients, or 11.4% of the cohort studied, were men. The sex ratio was 0.13 and the mean age was 42 years (17 - 80 years).

On average, symptoms were apparent for 44 months (5 - 260 months) before a definitive diagnosis of RA. At least one joint disorder was present in 60% of these patients, most frequently an ulnar deviation of the fingers (34.3%). Joint deformations were bilateral and symmetric, and the same patient could exhibit several different symptoms. **Figure 1** summarizes the joint disorders detected in this cohort. Extra-articular symptoms linked to RA are shown in **Figure 2**. Most frequently, they were dry eye syndrome (34%) or anemia (17%).

The mean erythrocyte sedimentation rate was 25 mm for the first hour (4 - 105 mm). It was increased in 18 of 35, or 51.4%, of these male patients. The average level of C reactive proteins was 24 mg/l (1 - 96 mg/l), an increase over control values in 92% of these patients.

The rheumatoid factor was positive in all patients and anti-CCP antibodies were detected in 80% of cases, at a mean level of 160 IU (2 - 340 UI). Some immunological et biological parameters are summarized in **Table 1**.

Table 2 compares these different epidemiological, clinical and immunological data according to gender. **Table 3** shows the influence of age on the gender balance.

4. Discussion

In this cohort of 35 men and 273 women, a gender ratio of 0.13 confirmed the female predominance of RA [6] [7]. RA is detected at all ages, but most often between 40 and 60 years of age. Over this age range it is about

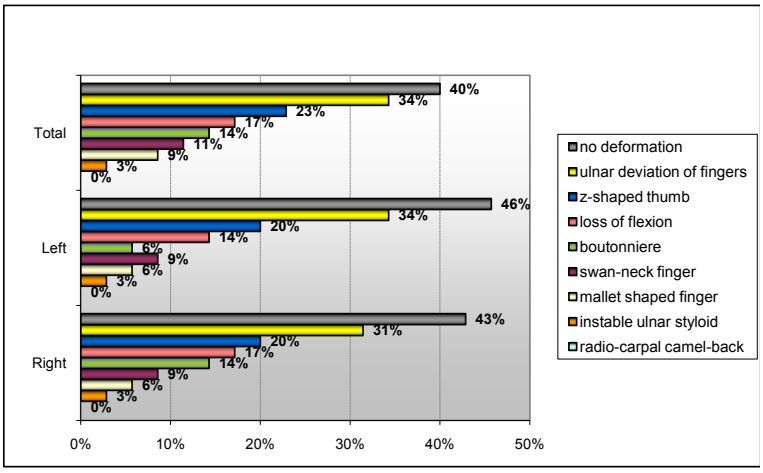

Figure 1. Frequency of different deformations.

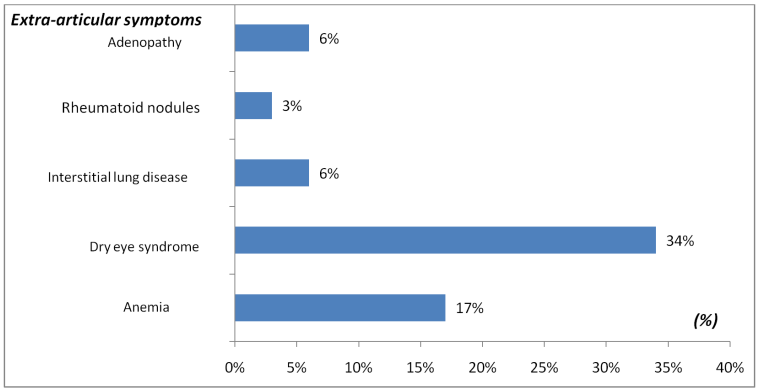

Figure 2. Frequency of extra-articular symptoms.

Table 1. Immunological et biological parameters.

Variables	N (%) Median (Q1; Q3)	Min; max
CRP, median (range), mg/dl	24 (12; 48)	1; 96
Erythrocyte sedimentation rate, median (range), mm/h	25 (20; 42)	4; 105
Rhumatoid factor, latex, median (range), IU/l	130 (27; 248)	8; 256
Rhumatoid factor, Waaler Rose, median (range), IU/l	32 (12; 64)	6; 512
Anti-CCP Antibodies[a], median (range), IU/l	160 (10; 340)	2; 340

[a]Anti-CCP antibodies were assessed in only 15 of the 35 patients.

four times more frequent in women than men, but the gender difference is reduced beyond 70 years. The same constation was done with Soubrier and al in France where the sex ratio female/man was about 4 in young people and 2 in elderly [8]. The mean age of male RA patients here was 42 years, comparable to that, 43.5 years, in a Moroccan study from Rkain *et al.* [9] and somewhat lower than the average age, 51.6 years, of male RA patients in a report from Tunisia [10].

The average latency from first symptoms to RA diagnosis in this series was 44 months ([5], p. 260). North African studies report values of 80 - 90 months [10]-[12], while the mean diagnostic delay for RA in France is given as 6 months [13]. Delayed diagnosis remains a major problem in sub-Saharan Africa. Prognosis deteriorates, especially in functional terms, as joint disorders progress. The diagnostic delay derives from several factors including a sometimes poor knowledge of the syndrome and limited number of medical centers as well as confusion with acute rheumatoid arthritis which remains endemic in sub-Saharan Africa

Joint disorders, present in 60% of our patients, typically concerned the wrists and hands. These regions are frequently (70% - 90%) affected in RA [14] [15]. A relatively mean long diagnostic delay may have contributed to the high proportion (60%) in this cohort. As for differences between men and women of this cohort, the swan neck deformity of the finger was significantly more frequent in men ($p = 0.04$).

Extra-articular manifestations seem rare in African blacks [16]-[18], within the limits of interpretation that can give open studies with a limited number of patients.

In our series, in addition to anemia of inflammatory origin (17%), 34% of patients had a secondary sicca syndrome with ocular and oral manifestations. This multifactorial anemia is less frequent in man men than women in our cohort ($p = 0.03$). Anemia is the most common systemic manifestation in the study of Mody [17]. Rheumatoid nodules, witnessed severe RA were found in only 3% of our patients despite the high seropositivity to rheumatoid factor in our study (100%). Rheumatoid nodules were present in 31.5% of patients in Kenya [19]. However, the diagnosis of rheumatoid nodule should be retained after having excluded infectious causes of skin nodule [20]. The other extra-articular manifestations were rare.

Immunological markers were strongly positive, in agreement with the severity of symptoms in the cohort. Anti-CCP antibodies, a key factor in the prognosis for RA [21], were positive in 80% of these male patients.

Table 2. Clinical data according to patient gender.

	Women N = 273 (89%)	Men N = 35 (11%)	p-value
Age			
Median (Q1; Q2)	41 (30; 52)	42 (34; 68)	p = 0.17
Min; max	16; 81	17; 80	
Home			
Urban	206/261 (78.9%)	24/33 (72.70%)	p = 0.42
Rural/semi-urban	55/261 (21.1%)	9/33 (40.0%)	
Disease Activity Score 28 (DAS 28)			
Median (Q1; Q2)	6.5 (5.5; 7.3)	6.5 (5.1; 7.1)	p = 0.40
Min; max	1.4; 9.7	2.7; 7.7	
Duration of symptoms (months)			
Median (Q1; Q2)	46 (25; 90)	44 (22; 84)	p = 0.48
Min; max	1; 382	5; 260	
Joint disorders			
Ulnar deviation of fingers	102/273 (37.4%)	12/35 (34.3%)	p = 0.72
Swan-neck finger	8/273 (2.9%)	4/35 (11.4%)	p = 0.04
Mallet-shaped finger	10/273 (3.7%)	3/35 (8.6%)	p = 0.17
Radio carpal camel-back	15/273 (5.5%)	0/35 (0%)	p = 0.23
Instable ulnar styloid	12/273 (4.4%)	1/35 (2.9%)	p > 0.99
Loss of flexion	38/273 (13.9%)	6/35 (17.1%)	p = 0.61
Z-shaped thumb	35/273 (12.8%)	8/35 (22.9%)	p = 0.12
Boutonniere	63/273 (23.1%)	5/35 (14.3%)	p = 0.24
No deformation	129/273 (47.3%)	14/35 (40%)	p = 0.42
Extra-articular symptoms			p = 0.56
Anemia	96/273 (35.2%)	6/35 (17.1%)	p = 0.03
Dry eye syndrome	78/273 (28.6%)	12/35 (34.3%)	p = 0.48
Interstitial lung disease	4/273 (1.5%)	2/35 (5.7%)	p = 0.09
Rheumatoid nodules	3/273 (1.1%)	1/35 (2.9%)	p = 0.38
Adenopathy	2/273 (0.7%)	2/35 (5.7%)	p = 0.07

Table 3. Variation of the male-female ratio with age.

	Younger than 60 years N = 270 (91%)	60 years or older N = 26 (9%)	p-value
Gender			p = 0.005 (F)
Female	244/270 (90.4%)	18/26 (69.2%)	
Male	26/270 (9.6%)	8/26 (30.8%)	
Sex ratio (M/F)	26/244 = 0.11	8/18 = 0.44	

5. Conclusion

RA occurs less frequently and is less studied in men than in women. In this series of young, adult African males with RA, immunological markers were strongly expressed. Diverse deformations of the hand were frequent, possibly due to long latencies to diagnosis.

Limitations

Our work has limitations related to important diagnostic delay, which could introduce a bias in the interpretation of the severity of RA. Indeed, the average length of evolution of symptoms before diagnosis was 44 months. Purely hospital setting does not allow extrapolating the results of this study in the general population.

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