Factors associated with extra-articular manifestations of rheumatoid arthritis in Abidjan, Côte d'Ivoire

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Abstract

Objective: The aim of this study was to identify factors associated with extra-articular manifestations of rheumatoid polyarthritis in Abidjan, Côte dIvoire.
Design: A descriptive and analytical retrospective study.
Methods: The study was conducted at the Rheumatology Department of Cocody's University Teaching Hospital in Abidjan from January 2009 to December 2018. The study participants were 106 patients with rheumatoid arthritis diagnosed on the basis of ACR 1987 and ACR/EULAR 2010 criteria, with extra articular manifestations.
Results: The study included 129 cases of rheumatoid polyarthritis and 106 of them had extra-articular manifestations. The hospital frequency of extra-articular manifestations in rheumatoid arthritis was 82.17%. Our sample population were 92 females (86.79%) and 14 males (13.21%) with an average age of 44.69 years. The average duration of disease progression was 62.36 months. Extra-articular manifestations observed were largely dominated by general signs (83.86%) and haematological manifestations (78%). Other cases included rheumatoid nodules (10%), abarticular manifestations (7.62%) and dry syndrome in 8.70% of cases. Visceral manifestations were cardiovascular (3.77%), neurological (1.89%) and pulmonary in 1% of cases. Only articular deformities (OR=2.4; IC 95% = [1.4-6.3]; P=0.03) were significantly associated to the presence of extra-articular manifestations.
Conclusions: Extra-articular manifestations are very common during the rheumatoid arthritis in Abidjan. Joint deformities are the major factors significantly associated to the presence of extra-articular manifestations.

Key words: Associated factors, Extra-articular manifestations, Rheumatoid arthritis, Abidjan

Introduction

Rheumatoid Arthritis (RA) is the most common chronic inflammatory rheumatism. It is characterized by polyarthritis and Extra-Articular Manifestations (EAMs) with a frequency of around 40% of patients[1]. These EAMs may appear either at the onset or during the evolution of the disease[1]. No actual classification is known for these EAMs. On the other hand, Turesson *et al*[2] issued criteria to be included or considered as EAMs: it was a set of visceral and organic manifestations. RA with EAMs, is considered by some authors to be severe and associated with increased mortality and patients suffering from it should be treated and monitored early and aggressively[3-5]. It therefore seems important to identify these manifestations. Some authors have identified factors associated with the presence of EAMs[6,7]. In our context, the knowledge of these frequency of EAMs and the research of the associated factors motivated the realization of our study. The main objective of the study was to identify the factors associated with EAMs of RA in Abidjan, Côte dIvoire.

Materials and methods

A retrospective (descriptive and analytical) study was conducted within the Rheumatology Department of the University Teaching Hospital of Cocody in Abidjan over a period of 10 years ranging from January 2009 to December 2018. It included 106 patients with rheumatoid arthritis who met the ACR 1987 and ACR-EULAR 2010 criteria, with EAMs. Incomplete records (records that lack critical information to support the diagnosis) and records of patient's loss of sight were not included.

We recorded at socio-demographic data (age, sex), clinical data (diagnostic delay, axial and peripheral joint damage, duration of morning stiffness, presence of joint deformities), biological data (sedimentation rate (ESR), C Protein Reactive (CRP), Rheumatoid Factors (RF), anti-cyclic citrullinated peptide antibodies

(anti-CCP antibodies) and radiographic (bone erosions). We looked for an association between the various socio-demographic, clinical, biological and radiographic factors and the presence of EAMs through appropriate statistical tests: the Pearson Chi Square test for qualitative variables, the Student t-test and the Anova test for quantitative variables. The association was significant if the Odd Ratio was consistently above or below 1 with a 95% confidence interval not containing the value 1 and risk p strictly below 0.05. The study was done in accordance with the Helsinki declaration on ethical principles.

Results

The hospital frequency of EAMs in RA was 82.17%, representing 106 out of 129 patients recorded during the study period. Our sample consisted of 92 females (86.79%) and 14 males (13.21%) with an average age of 44.69 years. The average duration of disease progression was 62.36 months at the time of diagnosis. RF and anti-CCP antibodies were positive respectively in 43% and 44% of patients. The different EAMs diagnosed were general signs (fever 53 cases, altered general condition 94 cases), haematological signs (inflammatory anaemia 74 cases, thrombocytosis 10 cases, leukopenia 6 cases, Felty syndrome 2 cases), rheumatoid nodules (10 cases), secondary Sjögren's syndrome (xerostomia and xerophthalmia 2 cases each), abarticular manifestations (8 cases) and vasculitis (3 cases). The visceral manifestations was cardiac (myocarditis 1 case), pulmonary (interstitial pulmonary fibrosis 11 cases, pulmonary nodule 1 case) and neurological (cervical spinal cord compression 2 cases). Tables 1 and 2 show socio-demographic, clinical, biological and radiographic data recorded and the association between these factors and the EAMs. We also looked for a correlation between these factors and the main general signs (fever) and haematological (anaemia) respectively in Tables 3 and 4.

Table 1: Correlation between socio-demographic and clinical data with EAMs

Sociodemographic and clinical data	Presence of EAMs	Absence of EAMs	P	OR IC95%
Mean age (years)	44.69	51.39	0.47	
Gender				
Female	92	21	0.3	
Male	14	02		
Average diagnostic delay (months)	62.36	65.55	0.8	
Morning stiffness				
≥ 1 hour	78	14	0.4	
< 1 hour	17	07		
Joint deformities	54	07	0.03	(OR=2.4) [1.4-6.3]
Cervical spine involvement	49	07	0.14	
Peripheral joint damage	104	22	0.17	

EAMs = Extra-Articular Manifestations

Table 2: Correlation between para-clinical data and EAMs

Para-clinical data	Presence of EAMs	Absence of EAMs	P-value
Mean ESR (mm)	80	12	0.19
Mean CRP (mg/l)	86	18	0.24
Positive RF	52	47	0.1
Positive anti-CCP antibodies	43	26	0.47
Bone erosions	69	08	0.35

EAMs = Extra-Articular Manifestations; ESR = Sedimentation Rate; CRP = C Protein Reactive
RF = Rheumatoid Factors; anti-CCP antibodies = Anti-Cyclic Citrullinated Peptide Antibodies

Table 3: Correlation between clinical and para-clinical data and fever

Para-clinical data	Presence of fever	Absence of fever	P-value
Average diagnostic delay (months)	59.66	65.67	0.5
Morning stiffness ≥ 1 hour	46	46	0.06
Cervical spine involvement	23	34	0.2
Joint deformities	28	33	0.4
Positive RF	32	32	0,18
Positive anti-CCP antibodies	31	41	0.2
Bone erosions	38	42	0.3

RF = Rheumatoid Factors; anti-CCP antibodies = Anti-Cyclic Citrullinated Peptide Antibodies

Table 4: Correlation between clinical and para-clinical data and anaemia

Para-clinical data	Presence of anaemia	Absence of anaemia	P-value
Average diagnostic delay (months)	57	74.1	0.13
Morning stiffness ≥ 1 hour	64	28	0.09
Cervical spine involment	37	20	0.4
Joint deformities	40	21	0.4
Positive RF	40	24	0.1
Positive anti-CCP antibodies	51	21	0.2
Bone erosions	53	27	0.3

RF = Rheumatoid Factors; anti-CCP antibodies = Anti-Cyclic Citrullinated Peptide Antibodies

Discussion

At the socio-demographic level: Our hospital frequency (82.17%) was very high and reflected the fact that EAMs were commonly present in RA. This observation was also made in the literature but with much lower proportions than ours, ranging from 17.8% to 40.9%[7-9]. We did not find a significant difference in age in our study, although the high age of onset is recognized as a predictor of EAMs[7]. The clear predominance of elderly women was noted in our study and is well known by the various studies in sub-Saharan Africa and other countries[6, 9, 10-12]. Although the male sex is significantly associated in terms of prediction (risk is doubled) with the presence of EAMs and also with the occurrence of mortality, this link was not confirmed in our study[7,15].

At the clinical level: The disease had an average progression time of 62.36 months at the time of diagnosis. This reflected a long diagnostic delay that is recognized as a predictor or associated with the development of a EAMs when adjusted for age and sex[9,10]. This situation could have favored the appearance of EAMs because these patients suffering from RA did not have early and adequate management. Some publications have mentioned the fact that EAMs may appear at the onset of the disease but most often in progress[9]. Various EAMs were recorded in our study and were dominated by general signs (fever and alteration of general condition) and haematological manifestations including inflammatory anaemia. In Europe, rheumatoid nodules were the most common EAMs[3,9,16]. There were only 10 cases of rheumatoid nodules in our study (10%). However, they were rarely diagnosed in Nigeria with a frequency of 1%[9]. In our study, the other visceral or organic manifestations had similar, proportions to those found in the literature [3,9]. In sum, our high frequency of general signs could not be found in other studies and their presence reflected the systemic character of RA in our context, thus confirming Cojocaru *et al*[1] and Bartels *et al*'s[17] assertions that these EAMs appeared at an active and evolved phase of the illness[1,17]. There was no association in our study between most of the clinical factors studied and the EAMs. Only the presence of joint deformities was significantly associated to the occurrence of EAMs in our study (OR= 2.43; IC 95% = [1.4- 6.3]; P= 0.03) although according to some publications the presence of a disability predicted the presence of severe EAMs [3,9,18].

At the paraclinical level: There was an inflammatory syndrome with an average ESR and CRP of 60.38 mm and 66.59mg/l, respectively. No association was found in our study between the inflammatory syndrome and the EAMs. However, a severe RA with high activity was a risk factor for EAMs[18,19]. According to Cojoracu *et al*[1], many EAMs were linked to an active and severe RA. The positivity of RF and anti-CCP was not significantly associated with the presence of EAMs in our study. In the literature, it was rather noted that the positivity of RF was significantly related to the occurrence of EAMs and that in multivariate analysis, the positivity of RF was a predictive factor of mortality[2,6-8,20]. In addition, the presence of RF is a risk factor for disease progression and aggravation and for an increase in the frequency of EAMs[20]. The functional prognosis takes into account disabilities and bone erosions, which are the most striking elements of the severity of the disease. Bone erosions are a reflection of this joints destruction. They were not associated with the presence of EAMs according to our study. However, they were recognized as factors associated with the occurrence of severe EAMs[6].

Conclusion

EAMs are very common in RA in Abidjan. RA with presence of EAMs is more common in adult females. The diagnostic delays are long. The main EAMs are general signs and haematological manifestations. Only joint deformities are significantly associated with the presence of EAMs in our study.

The authors declare no conflict of interest.

We obtained the consent of the patients.

The study was cleared by the relevant ethics committee.

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