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Trends in Internal Medicine

# Systemic Inflammatory Diseases in Internal Medicine at the CNHU-HKM of Cotonou: Frequency, Clinical, And Immunological Aspects

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## ABSTRACT

***Introduction:*** *Systemic inflammatory diseases (autoimmune and autoinflammatory) are quite infrequent and challenging to diagnose. The intent of this study is to determine the hospital frequency, clinical, and immunological aspects of these diseases in the internal medicine department of the CNHU-HKM of Cotonou.*

***Methods:*** *This was a cross-sectional, descriptive study that was conducted from March 30 to October 30, 2018, and involved patients followed in the Internal Medicine Department of the CNHU-HKM for systemic inflammatory diseases*

***Results:*** *During the study period (7 months), 699 patients had consulted the service. We counted 23 patients for our study, i.e. a frequency of 3.3%. The average age was 44 (±12) years with extremes of 24 to 64 years. The majority of our patients were women with a sex ratio (M/F) of 0.09. Prolonged fever was the primary reason for admission (34.8%), followed by polyarthralgia (25%). Systemic lupus was the most represented (52.2%), followed by scleroderma (13%), mixed connectivity (13%). As for the class of systemic inflammatory diseases, systemic autoimmune diseases were the most represented (87.0%). Anti-nuclear antibodies were the most frequent (56.5%).*

***Conclusion:*** *Systemic inflammatory diseases are little known in Benin Republic. In fact, their clinical and immunological presentations are quite polymorphic.*

## Keywords

Antibodies, Cotonou, Auto-inflammatory, Autoimmune.

## Introduction

Systemic inflammatory diseases (autoimmune and autoinflammatory) are quite infrequent and challenging to diagnose. They can take on atypical clinical aspects making their differential diagnosis with infectious diseases difficult. In sub-Saharan Africa, they are rarer, especially because of their lack of awareness, which explains their late diagnosis. In line with Azon-Kouanou A. et al., the majority of general practitioners in Cotonou had limited knowledge of systemic lupus [1]. In this context of rare and unknown diseases, the objective of our study was to determine the hospital frequency, clinical, and immunological aspects of these diseases in the Internal Medicine Department of the Hubert Koutoukou Maga National and Teaching Hospital (CNHU-HKM) of Cotonou.

## Methods

This was a cross-sectional, descriptive study that was conducted from March 30 to October 30, 2018, i.e., 7 months, and involved patients followed in the internal medicine department, CNHU-HKM of Cotonou for systemic inflammatory diseases and who gave their informed consent. Effectively, patients were

either hospitalized or followed as outpatients. We performed an exhaustive recruitment of all patients seen during the study period and who met the inclusion criteria. The collection technique consisted of a selection of patients meeting the inclusion criteria from the hospitalization register and the consultation files of the internal medicine department. We then proceeded with the analysis of the files of the patients selected to fill in the survey form. The analysis consisted in collecting socio-demographic data, and history and data related to the autoimmune disease. Then we performed the clinical examination. The data collection was done using a survey form established for this purpose. The variables studied were: sociodemographic characteristics, and history and variables related to the clinical and paraclinical examination. Free and informed consent was required from each patient before submission of the questionnaire. After a discussion session, patients were given clear explanations of the procedures to obtain their verbal informed consent. The use of medical records was confidential. Data analysis were computed using SPSS (Statistical Package of Social Science) 16.0 software. Graphs and tables were developed using Microsoft Word and Microsoft Excel 2010.

## Results

### Frequency

During the period from March 30 to October 30, 2018, i.e. 7 months, 699 patients had consulted in the internal medicine department CNHU-HKM of Cotonou. We registered 23 patients for our study, i.e. a frequency of 3.3%.

### Sociodemographic Characteristics

### Age

The most represented age group was 55 to 64 years (26.1%) with an average age of 44 years (±12) and extremes of 24 to 64 years.

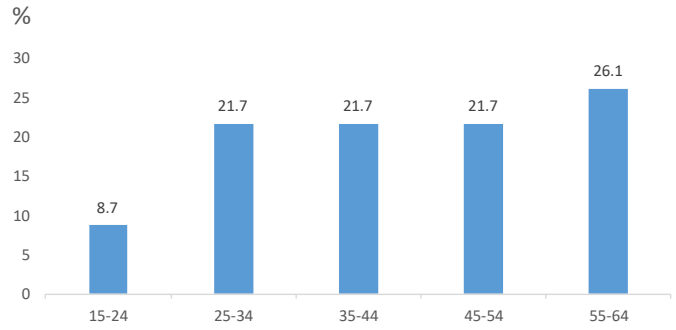


**Figure 1:** Distribution of patients by age group.

### Sex

Females predominated at 91.3% with a sex ratio of 0.1.

### Profession

The most amounted profession was that of traders/retailers (39.1%).

### Marital status

The majority of our patients were married (60.9%); 17.4% were single, 17.4% divorced, and 4.3% widowed.

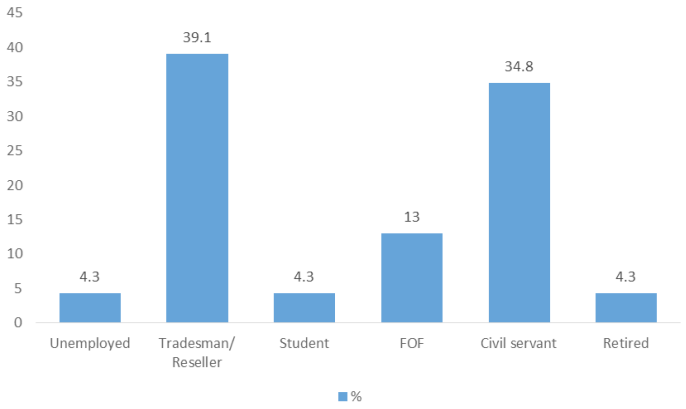


**Figure 2:** Distribution of patients by profession.

### Clinical Aspects

### Reason for admission

Prolonged fever was the most common reason (34.8%), followed by polyarthralgia (26%).

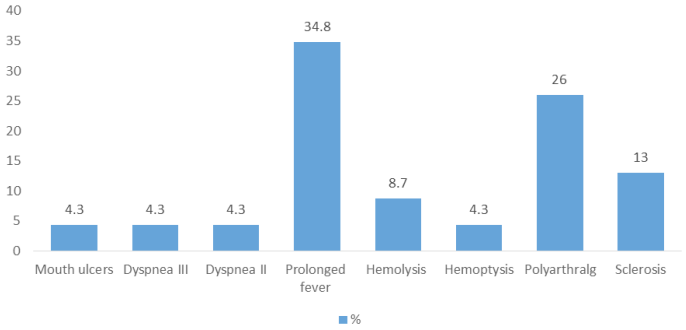


**Figure 3:** Distribution of Patients by Reason for Entry.

### Physical examination

Physical examination was normal in 47.8% of our patients.

**Table 1**: Distribution of Patients According to the Frequency of Clinical Signs.

| | Frequency | % |
|---|---|---|
| Normal | 11 | 47.8 |
| Alopecia | 2 | 8.6 |
| Joint deformity | 2 | 8.6 |
| Butterfly erythema | 2 | 8.6 |
| Sclerodactyly | 2 | 8.6 |
| Tachycardia | 2 | 8.6 |
| Clinical anemia | 1 | 4.3 |
| Bipolar aphthosis | 1 | 4.3 |
| Total | 23 | 100 |

The major part of our patients had normal blood pressure, 78.2% (17 cases).

Obesity was present in 21.7% of these patients, overweight in 26.1%, and underweight in 4.3%.

### Autoimmune and auto-inflammatory diseases

Systemic lupus erythematosus (SLE) was the most common disease, accounting for 52.2% or 12 cases.

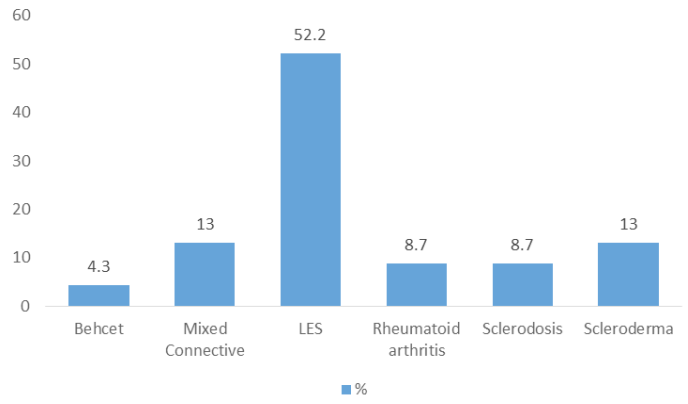


**Figure 4:** Distribution of Patients with Autoimmune Disease.

Autoimmune diseases were the highly represented (87.0%) (Table 2)

**Table 2**: Distribution of Patients by Type of Systemic Inflammatory Disease.

| | Frequency | % |
|---|---|---|
| Autoimmune diseases | 20 | 87.0 |
| Auto-inflammatory diseases | 03 | 13.0 |
| Total | 23 | 100 |

## Immunological confirmation

AAN was the most frequent at 56.5%.

**Table 3**: Distribution of Patients by Immunological Confirmation.

| | Frequency | % |
|---|---|---|
| AAN | 13 | 56.5 |
| Ac anti-SM | 8 | 34.8 |
| Ac anti-RNP | 7 | 30.4 |
| Ac anti-DNA natif | 6 | 26.1 |
| Ac anti-ENA | 6 | 26.1 |
| Ac anti-CCP | 3 | 12.9 |
| FR | 3 | 12.9 |
| Ac anti-SSA | 2 | 8.7 |
| Ac Anti-centromère | 2 | 8.7 |
| Ac Anti-Scl70 | 1 | 4.3 |

ANA: anti-nuclear antibodies; RF: Rheumatoid Factor

## Discussion

Among the 699 patients registered during the study period, we enlisted 23 patients who met our selection criteria, i.e., a hospital frequency of 3.3%. Systemic inflammatory diseases are little known and often challenging to diagnose in sub-Saharan Africa. In a study conducted in Cotonou in 2017, 91.4% of general practitioners had limited knowledge about systemic lupus [1].

In our series, the mean age was 44 (±12) years with extremes from 24 to 64 years. This mean age was comparable to that found by Kane et al. [2] in Dakar, which was 43.76 years.

Our study population was predominantly female with a male to female sex ratio of 0.1. This female predominance was similar to that of several others such as Ngaïdé et al. in Senegal [3] and Tazi-Mezalek et al. in Morocco [4]. Estrogens are thought to increase the secretion of prolactin and growth hormones, which in turn may play a role in the proliferation of T and B lymphocytes [5], androgen deficiency may be associated with the development of immune-related events [6]. The most represented occupation was that of traders/dealers (39.1%). We did not have a similar study in the literature. Traders/retailers were the most motivated to consult because they had an average socio-economic level that allowed them to pay for consultations and to take care of themselves. However, this hypothesis remains to be verified. The majority of our patients were married (60.9%) followed by single and divorced patients (17.4% each). The reason for admission was dominated by prolonged fever (34.8%). Our results were not similar to the work of Ngaïdé et al. [3] in Senegal who found that the symptomatology was dominated by dyspnea stages II and IV according to NYHA, at 26%. Our results could be explained by the fact that systemic inflammatory diseases are known to be etiologies of prolonged fever and especially in a tropical context. Overall, the clinical examination was abnormal in 52.2% of patients. The abnormalities were dominated by alopecia in 8.6%, joint deformities in 8.6%, butterfly wing erythema in 8.6%, sclerodactyly in 8.6%, tachycardia in 8.6%, anemia in 4.3%, and bipolar canker sores in 4.3%. According to Ouédraogo in Burkina Faso, skin involvement was predominant in a study on connectives [7]. Blood pressure was elevated in 21.8% of patients. This seems a bit high given the average age of these patients. Our results are superimposed with those of Solomon et al. [8] in 2012 in South Africa. In our cohort, the majority of our patients were normal weight in 47.8%, overweight in 26.1%. Dessein et al. [9] in South Africa in 2013 who had found obesity in 41.1%, overweight in 25.2% in RA patients. The overweight in our cohort could be explained by a difference in lifestyle levels, dietary habits on the one hand, and treatment with corticosteroid therapy on the other. Systemic lupus was the most represented pathology (52.2%). Agbodande in Benin Republic [10], also found a predominance of systemic lupus in a study on the panorama of connectivity in the internal medicine department of the CNHU-HKM. On the other hand, Kane in Senegal found a predominance of rheumatoid arthritis [2]. Anti-nuclear antibodies were the most represented (56.5% of our patients). In our study, the rate of ANA found was higher than that found by Ngaidé et al. [3] in Senegal, which was 20%. Anti-Sm antibodies were found in 34.8%. In contrast, Ngaidé et al. [3] found 49%. Anti-U1RNP antibodies were positive in 30.4%; our results are superior to those of Ngaidé et al. who found 18%. [3]. Anti-RNP antibodies are mostly described for the diagnosis of mixed connectivitis (MCTD or Sharp's syndrome) or undifferentiated connectivitis but they can also be detected in patients with SLE. They usually indicate less severe lupus involvement [11]. Anti-DNA antibodies were positive in 26.1%; therefore, our results were superimposed with those of Ngaidé et al. who found 25% [3]. Anti-SSA antibodies (RO) were positive in 8.7%. The frequency of anti-SSA in lupus is very variable, ranging from 20 to 60% according to the series [12]. Anti-SSA Ac has a high predictive value for the diagnosis of SLE, especially for patient's positive for NAA but without anti-DNA or anti-Sm [13]. Our study is similar to that of Ngaidé et

al. [3] in Senegal, which found 9%. Anti-PCC and RF antibodies were positive in 12.9%, respectively. Anti-centromere antibodies were positive in 8.7% while anti-SCl 70 antibodies were positive in 4.3%.

## Conclusion

Systemic inflammatory diseases are overlooked in Benin Republic. Their clinical presentation is quite polymorphous. The technical platform is often insufficient for their confirmation and management is sometimes difficult, especially because of the limited financial means of some of our patients. It is also important to initiate, in Benin Republic, post-graduate training on systemic inflammatory diseases, especially for general practitioners, to ensure early diagnosis of these diseases.

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