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# Frequency and Etiology of Viral Arthropathies in West African Patients

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## Abstract

**Aim:** To determine the frequency and etiology of viral arthritis in West African patients at the National Hospital University Hubert Koutoukou Maga of Cotonou. **Patients and Methods:** It was a cross-sectional descriptive study carried out from January 2010 to July 2014 on patients received in rheumatology, hepato-gastroenterology, pediatric and internal medicine units. The selected patients had viral arthropathy. The diagnosis of viral arthritis was based on the presence of arthralgia or arthritis in the context of a viral infection. Patients with insufficiently explored records were excluded. **Results:** Among 4361 patients consulted, 49 (1.12%) had a viral arthropathy. The mean age of the patients was  $49.13 \pm 17.1$  [15 - 68] years. The sex ratio was 0.58 (31 F/18 H). 38 patients were from Benin, 5 from Nigeria, 3 from Togo, 2 from Mali and 1 from Côte d’Ivoire. Joint symptoms were dominated by polyarthritides (n = 24 cases) and polyarthralgias (n = 18 cases). Extra-articular signs present were dominated by fever (100%), skin signs (n = 37 cases), flu symptoms (n = 23 cases) and liver disorder (n = 19 cases). Viruses diagnosed were dominated by hepatitis B (n = 17), varicella-zona (n = 8) and HIV (n = 14). **Conclusion:** Viral arthropathy diagnosis is relatively common in West African patients especially with the HIV. This occurs as arthralgias or arthritis. The diagnosis is difficult in our working condition.

## Keywords

Arthropathy, Viruses, Hepatitis B, HIV, Africa

## 1. Introduction

Infectious arthritis is a common clinical situation in African rheumatology units.

It takes an important part in the etiology of arthritis [1]. The frequency of viral etiology is poorly understood because of the difficulty in diagnosis and the lack of publications in Africa. Responsible viruses are present in both adults and children [2] [3]. However, while some viral agents involved in this context have a definite place, such as hepatitis B and C virus, rubella, Human Immunodeficiency Virus (HIV) and Human T cell leukemia/lymphoma virus type 1 (HTLV-1), other like alpha viruses are most often ignored that the literature data are scattered [4]. Moreover, joints' signs during viral diseases are numerous. They may be isolated or most often associated with other symptoms related to viral attack [5]. During viral infections, polyarthralgias represent one of the core symptoms even though they are rare and with no accurate epidemiological data. Arthritis is also very common. They are usually limited to a few weeks [5] [6]. The frequency of these signs is poorly known in developing countries mainly because of a lack of publications [7] and the likely confusion with early inflammatory joint disease [2]. The objective of this study is to determine the frequency and the etiologies of viral arthropathies in West African patients consulted in the National Hospital University Hubert Koutoukou Maga of Cotonou.

## 2. Patients and Methods

It was a cross-sectional descriptive study carried out from January 2010 to July 2014 on patients received in rheumatology, hepato-gastroenterology, pediatric and internal medicine units. The selected patients met the following criteria:

- Have consulted or hospitalized in one of the units during the study period.
- Have presented an arthropathy with the presence or absence of synovitis.
- Have a complete clinical record with the diagnosis of viral arthropathy.

The diagnosis was based on the presence of arthralgia or arthritis in the context of a viral infection (peripheral joint syndrome in the context of a viral infection: flu symptoms, rash and elevated liver enzymes, viral serology). Any virus has been identified in joint fluid. The study excluded patients with a clinical record insufficiently explored.

Data collection was done from a well-developed survey and record data were analyzed using epidata and SPSS 17.0.

## 3. Results

### 3.1. Socio-Demographics Data

Forty-nine (49) patients of the 4361 consulted in the period are found with arthropathy virus (1.12%).

The mean age of the patients was  $49.13 \pm 17.1$  [15 - 68] years. There were 5 teenagers and 44 adults. The sex ratio was 0.58 (31 F/18 H).

The patients had various nationalities in the West Africa: 38 patients were Beninese, 5 from Nigeria, 3 from Togo, 2 from Mali and 1 from Côte d'Ivoire.

### 3.2. Clinical Features

Joint symptoms were dominated by polyarthrititis. **Table 1** summarized the vari-

ous joint symptoms.

The predominant extra-articular signs were fever (100%), skin signs (n = 37 cases) and flu symptoms (n = 23 cases). These signs are summarized in **Table 2**.

An antiviral treatment was initiated with 29 patients.

### 3.3. Etiological and Scalable Data

The different types of virus were dominated by hepatitis B and HIV. All viruses identified are summarized in **Table 3**.

### 3.4. Evolution

The result was satisfactory with all the patients with regression of joint symptoms.

## 4. Discussion

Viral arthropathies are relatively common in our series. The lack of publications does not allow to have an overall prevalence of viral arthropathies. However, this prevalence is known for certain viral infections [4].

No ethnic group is spared in our series. The female predominance observed is

**Table 1.** Joint symptoms in the patients.

	Number	Frequency (%)
Polyarthralgias	42	86
Oligoarthritis	4	8
Polyarthritis	3	6
Total	49	100

**Table 2.** Distribution of extra-articular signs.

	Number	Frequency (%)
Fever	49	100
Flu symptoms	23	46.9
Skin signs	37	75.5
Liver signs (cytolysis)	19	38.8
Diarrhea	11	22.4
Renal disorder	2	4

**Table 3.** Distribution of viruses involved in arthropathy.

	Number	Frequency
Hepatitis B	17	34.7
Hepatitis C	2	4.1
Rubélla	1	2
Paramyxovirus (mumps)	3	6.1
Varicella-zona	8	16.4
Enteroviruses	4	8.1
HIV	14	28.6
Total	49	100

probably related to the overall frequency of hospital patient attendance dominated by female gender in our country.

Clinically, polyarthralgias and oligo-arthralgias dominate (86%). This frequency reaches 60% or 80% in the literature for infringement by including some virus Parvovirus B19 and Hepatitis B virus [1] [5] [6] [8]. In fact, these are the most frequent articular signs. Arthritis is rare in our series and is often discovered in chronic stage. This scarcity of synovitis is described in the literature. It is more common in cases of infringement by alphavirus [7] [9] [10] [11]. The mechanisms of synovitis are diverse. Direct invasion, with an intra-articular virus replication in the synovial joints and other tissues, is certainly rare. This mechanism is seen during an infection by the rubella virus, or after the vaccine against rubella. In most cases, viral arthritis is the manifestation of an immunological phenomenon. Arthritis is one of the clinical signs of immune complex deposition where the virus (viral antigen) is the antigenic component. The humoral response is critical to the clinical diagnosis, which explains why arthritis never occurs at the time of infection, but only after the development of antibodies. This mechanism is responsible for joint pain and arthritis observed in cases of infection with hepatitis B or C, parvovirus B19 and alphavirus [1] [8]-[14].

Establishing a definitive diagnosis of viral arthritis is difficult, and often not very useful because no therapeutic impact. It is directly dependent on the demonstration of the infectious agent or at least a specific immune response [10] [11] [13]-[19].

With some patients, it may be strongly suspected based on clinical symptoms such as the presence of a rash in a typical case of rubella, or jaundice during hepatitis. A history of vaccination against rubella or infectious contagion outbreak of parvovirus can also be very evocative [20]-[25]. However, in most cases there are only non-specific and constitutional symptoms such as fever, rash and myalgias [26] [27] [28] [29].

The serology is the most common method used to determine the viral etiology of a clinical examination. It is based on the observation of a normal acute humoral response such as IgM primary production followed by the secondary IgG [6] [8] [30].

## 5. Conclusion

Viral arthropathies are not frequent in our series and are dominated by polyarthritis associated with hepatitis B virus and HIV. Diagnosis is difficult in Africa country based on serological test. There is no specific treatment. Simple symptomatic measurements are sufficient.

## Competing Interests

The authors declare have no competing interests.

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