

Profile of osteoarticular infections among rheumatology inpatients in Lome, Togo: A multicenter experience

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Abstract

Objective: To describe the epidemiological, clinical, therapeutic and evolutionary aspects of osteoarticular infections in rheumatology departments of several institutions in Lome, Togo.

Design: This was a multicenter cross-sectional study.

Methods: The study was conducted from December 1, 2019 to February 29, 2020 on the records of patients suffering from osteoarticular infections hospitalized in the rheumatology departments of several institutions in Lome, Togo.

Results: Of the 1957 patients hospitalized in the rheumatology departments of Lome over a five-year period, 262 (13.38%) suffered from an osteoarticular infection. The mean age of the 262 patients (53.82% females and 46.18% males) was 42.06 ± 19.12 years and the mean duration of the disease was 4.28 months. The different clinical forms observed were: infectious spondylodiscitis (184 cases; 70.23%), infectious arthritis (81 cases; 30.92%) and bones infection (five cases; 1.90%). Infection was of probable tuberculous origin in 71.48% of patients, including 61.48% with Pott's disease. A germ was isolated in 18 patients and was mostly *Staphylococcus aureus* in nine cases and *Mycobacterium tuberculosis* in five cases. The peripheral joints most affected by the infection were the knees (41 patients) and the hips (19 patients). The common risk factors identified were: poor hygiene (44.15%); alcohol abuse (22.73%) and HIV infection (33.73%). The evolution below 12 months of anti-tuberculosis treatment or below two months of triple broad-spectrum antibiotic therapy according to the aetiology was favorable in 223 patients (85.11%). Eight patients (3.05%) succumbed.

Conclusion: Osteoarticular infections are one of the most common cases observed in hospitalization at the rheumatology departments in Lome. Infectious spondylodiscitis is the commonest clinical form.

Key words: Spondylodiscitis, Arthritis, Infection, Risk factors, Epidemiology, Black Africa

Introduction

Osteoarticular Infections (OAI) are cosmopolitan, but unevenly distributed around the world and their incidence increases with age. In Europe, the overall prevalence of OAI is 54.6/100,000 inhabitants and constitutes 0.2% of hospitalizations¹.

OIA are significant causes of morbidity and sometimes mortality; and have an important economic impact, with prolonged stays and frequent re-hospitalizations^{1,2}. OAI remains a public health issue in Africa^{3,4} and constitute a diagnostic and therapeutic emergency. OIA are often seen at a late stage and are enlarded with many complications. In Togo, few studies after our personal investigation have been devoted to OAI in rheumatology⁵⁻⁸.

This study aimed at exploring the epidemiological, clinical, and therapeutic and evolution aspects of OAI in rheumatology in Lome, Togo.

Materials and methods

This was a multicenter cross-sectional study conducted from December 1, 2019 to February 29, 2020 on the records of patients with osteoarticular infections hospitalized in the rheumatology departments of several institutions in Lome from 2015 to 2019. The study was approved by the ethics committee. The demographic, clinical, bacteriological and radiological data of the patients have been collected from their files.

The positive diagnosis of the osteo-articular infection has been essentially radiological and clinical while the aetiological diagnosis was based on the isolation of the germ, and/or the underlining of the characteristic histopathological lesions, or a strong

clinical suspicion (existence of another infectious location, namely a pulmonary or spine tuberculosis, response to antibiotic treatment). The infection was considered certain if a causal microorganism was isolated or if a specific histopathological lesion was observed in the infectious site. On the contrary, the infection has been considered probable in case of a strong clinical suspicion (existence of another infectious location, namely a pulmonary or spine tuberculosis, response to antibiotic treatment).

Each patient has been submitted to radiography, a complete blood count, measurement of the erythrocyte sedimentation rate, a retroviral serology. Fever was defined as a temperature above 37.5°C and leukocytosis defined as a leukocytic count >11,000/ml. Erythrocyte Sedimentation Rate (ESR) greater than 20mm in the first hour was considered to be high. Some patients have been subjected to CT scan or Magnetic Resonance Imaging (MRI) in case of an inconclusive result on standard radiography. In case of underlining of a given infectious entrance, a swab has been done in view of a cytological and bacteriological test. Due to the absence of technical facilities, no patient underwent a discovertebral biopsy. Data analysis was performed by using SPSS software for Windows (Version 17.0).

Results

Of the 1957 patients hospitalized in the rheumatology departments of several institutions in Lome over a five-year period, 262 (13.38%) suffered from osteoarticular infections. The OAI patients were represented by 53.82% females and by 46.18% males. The mean age of the OAI patients was 42.06 ± 19.12 years with extremes of one aged 86 years. Thirty to thirty nine years age groups were the most represented in 19.41% of the cases. The mean duration of the disease progression was $4.28 \text{ months} \pm 3.94 \text{ months}$ with extremes of five days and 18 months. The evolution of the disease was below one month in 54 patients (20.61%); within one to three months in 73 patients (27.86%) and above three months in 135 patients (51.53%). Vertebral pain (218; 83.20%) was the main reason for hospitalization (Table 1).

Table 1: Distribution of patients by reason for hospitalization

	No.	(%)
Rachialgia	218	83.20
Pain and swelling in joints	47	17.94
Pain in the root of the lower limb	17	6.49
Buttock pain	10	3.82
Pain and swelling of the limb	2	0.77

The onset of the pain was progressive in 161 (61.50%) patients and sudden in 101 (38.50%) others. The pain was inflammatory (164; 62.60%); mechanical (55; 21.00%) and mixed (43; 16.40%). General appearance was ill in 161(60.70%) patients and high grade fever was present in 115 (43.90%) patients. The different clinical forms observed were: infectious spondylodiscitis (184 cases; 70.23%), infectious arthritis (81 cases; 30.92%) and bone infections (five cases; 1.90%) (Table 2).

Table 2: Socio-demographic characteristics of the different clinical forms of OAI

	N (%) ^a	F/H ^b	Age moyen (m ± ET) ^c	DME ^a (m ± ET)
Infectious spondylodiscitis	184 (70.23%)	96/88	43.42 ± 18.35	4.99 ± 3.82
Infectious arthritis	81 (30.92%)	46/35	40.06 ± 20.58	2.60 ± 3.70
Infectious osteitis	05 (1.90%)	3/2	29.80 ± 21.19	5.29 ± 4.93

α = Number (Percentage); β = Female/Male; δ = mean ± standard deviation ; μ = mean disease duration

The infection entry point was pulmonary (17 cases, 06.48%), skin (14 cases, 05.34%), urine tract (14 cases, 05.34%), dental (1 case, 0.38%), and ear-nose-throat (1 case, 0.38%). The infection was due to tuberculosis in 192 patients (probable: 187 cases; confirmed: 5 cases) and due to a common bacteria in the remaining 78 (probable: 65 cases; confirmed: 13 cases). Advanced forms of infectious spondylodiscitis were characterized by gibbosity (34.23%), spinal cord compression (11.41%), radicular compression (4.89%), cauda equina syndrome (3.80%), paravertebral abscess (2.17%).

The tuberculin skin test was performed in seven patients, among whom five were positive. Nine patients had undergone the GeneXpert test, with three patients turning positive. These were mainly *Staphylococcus aureus* in nine cases and *Mycobacterium tuberculosis* in five cases with (Table 3).

Table 3: Distribution of patients according to the germs isolated

	No.	(%)
<i>Staphylococcus aureus</i>	9	50.00
<i>Mycobacterium tuberculosis</i>	5	27.78
<i>Escherichia coli</i>	2	11.12
<i>Bacille Gram négatif</i>	1	5.55
<i>Acinetobacter calcoaceticus</i>	1	5.55
Total	18	100

The lumbar vertebrae (141 cases) and the knee (41 cases) were the main locations (Table 4).

Table 4: Distribution of patients by site of osteoarticular infections

	No.	(%)
Spine (n=184)		
Lumbar	118	64.14
Dorsal	40	21.74
Dorsal-lumbar hinge	14	7.60
Dorsal et lumbar	9	4.90
Cervical	2	1.07
Cervical et lumbar	1	0.55
Peripheral joints (n=101)		
Knee	41	40.59
Hip	19	18.81
Sacroiliac	17	16.83
Hand and wrist	9	8.91
Ankle	8	7.92
Shoulder	6	5.94
Elbow	1	0.99

The spine was affected in one joint (174 cases; 94.56%); two joints (10 cases; 5.44%). The peripheral infectious arthritis location was in one joint (65 cases; 80.24%), two joints (8 cases; 9.87%), oligoarticular (5 cases; 6.17%) and polyarticular (3 cases; 3.70%). The major risk factors identified for infection were: poor hygiene (68 cases; 44.15%); alcohol abuse (35 cases; 22.73%) and HIV infection (35 cases; 33.73%) (Tables 4).

Table 4: Distribution of the 154 patients according to risk factors

	No.	(%)
Poor hygiene	68	44.15
Alcohol abuse	35	22.73
HIV infection	35	22.73
Haemoglobinopathy	15	9.74
Type 2 diabetes	8	5.19
Chronic renal failure	5	3.24
Malignant tumour	1	0.64

The outcome below 12 months of anti-tuberculosis therapy or below two months of triple broad spectrum antibiotic therapy depending on the aetiology was favorable in 223 (85.11%) patients. The various neurological complications were under control with medications and physiotherapy. Eight (3.05%) patients succumbed and 31 (11.83%) others were lost to follow-up.

Discussion

Osteoarticular infections affect 13.38% of rheumatic patients, at all ages between 1 to 86 years, with an average of 30 to 39 years, and affects mostly the female gender. The most important risk factors were poor hygiene, alcohol abuse, HIV infection and sickle cell disease. Infectious spondylodiscitis was the most clinical form followed by infectious arthritis.

In spite of the shortcomings (hospital recruitment, narrowness of the technical platform), this high frequency demonstrates the important place of OAI in rheumatological practice in Lomé. The OAI frequently occur in young and middle-aged adults and independently of gender according to various studies^{1,4,9,10}. This relatively young age of the patients in African series could be explained by the demographic pattern of the African population. The long delay before consultation (4.28 months) can be explained on the one hand by the lack of information, and the low economic status (difficulties of geographical access to health centers, narrowness of the technical platform, and poor financial means) and on the other hand by the use of medications without any medical prescriptions and the frequent attendance to traditional healing centers.

The most common risk factors such as poor hygiene, alcohol abuse, HIV infection and sickle cell disease were found in other African studies^{3,4,11-12} contrary to the West where iatrogenic causes, chronic inflammatory rheumatism and history of joint arthroplasties are most associated with osteoarticular infections^{13,14}. Infectious spondylodiscitis (70.23%) was the most clinical form with the predominance of tuberculosis origin characterized by the high frequency of advanced forms. These results are similar to other studies^{4,7,15}. Tuberculosis remains a public health issue in developing countries. The semiological, therapeutic and outcome features of OAI are in accordance with the literature^{9,15-23}. The bacterial natures of our series, with *staphylococci* as the commonest germ, is the same found with other African authors^{7, 21,22} where the low rate of isolation of the germ contrasts with that of developed countries²⁴. This can be explained by the delay in diagnosis, the inadequacy of the local technical facilities, the low socio-economic level and by the abuse of antibiotic therapy. The Polymerase Chain Reaction (PCR) would be an important asset for diagnostic confirmation in Black Africa where aetiological certainty of osteoarticular infections often remains difficult.

Therapeutically, however, there is no African consensus on the codified management of HAI^{25,26}. The various therapeutic combinations used vary from country to another. Improving the living conditions of the population, diagnosing and managing earlier OAI will reduce the occurrence of osteoarticular infections in Africa.

Conclusion

Osteoarticular infections are the most common cases of hospitalization in rheumatology departments in Lome. Infectious spondylodiscitis is the commonest clinical form. The improvement of the living conditions of the population, early consultation and the improvement of diagnostic methods will help a better identification of the causing germs in order to ensure their good treatment.

Conflict of interest: The authors have no conflict of interest.

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