



(RESEARCH ARTICLE)



THERAPEUTIC PRACTICES IN OSTEOARTHRITIS IN SUB-SAHARAN AFRICA: EXPERIENCE OF THE CHU-RN OF N'DJAMENA AND CHALLENGES OF CARE IN CHAD

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ABSTRACT

Introduction: Osteoarthritis is a chronic and disabling rheumatic condition whose management relies on a multimodal approach. In sub-Saharan Africa, data on therapeutic practices remain limited. In Chad, such data are particularly scarce. The objective of this study was to describe therapeutic practices for osteoarthritis at the CHU-RN of N'Djamena and to analyze the main challenges of its management.

Methods: This was a retrospective cross-sectional study conducted in the Department of Internal Medicine of the CHU-RN of N'Djamena. Patients managed for osteoarthritis in the initial study were included. Sociodemographic, clinical, and radiographic data, comorbidities, and prescribed or received treatments were collected. Therapeutic modalities were classified into non-pharmacological measures, pharmacological treatments, local treatments, physical modalities, and surgery.

Results: A total of 894 patients were included in the therapeutic analysis. Pharmacological treatment was the main therapeutic modality. Paracetamol was prescribed in 782 patients (87.5%), non-steroidal anti-inflammatory drugs in 591 (66.1%), step-II analgesics in 321 (35.9%), and symptomatic slow-acting drugs for osteoarthritis in 475 (53.1%). Corticosteroid injections were performed in 253 patients (28.3%). Physiotherapy was provided to 244 patients (27.3%), while surgical management was performed in 62 patients (6.9%). Disease-modifying treatments identified in some patients corresponded to associated rheumatoid arthritis and were not considered specific treatments for osteoarthritis.

Conclusion: Osteoarthritis management at the CHU-RN of N'Djamena relies mainly on pharmacological treatments, with substantial use of paracetamol and non-steroidal anti-inflammatory drugs. The relatively limited use of physiotherapy highlights the need to strengthen non-pharmacological approaches. A multimodal strategy combining rational symptomatic treatment, patient education, adapted physical activity, weight management, rehabilitation, and targeted use of interventional and surgical treatments appears necessary in the Chadian context.

Keywords: Osteoarthritis; Therapeutic practices; Management; Sub-Saharan Africa; Chad; CHU-RN of N'Djamena.

1 INTRODUCTION

Osteoarthritis is a chronic and disabling rheumatic condition whose management is based on a multimodal approach combining non-pharmacological measures, pharmacological treatments, local treatments, functional rehabilitation and, in advanced cases, surgery [1,2].

In sub-Saharan Africa, data on osteoarthritis remain mainly hospital-based and often focus on specific sites, particularly knee osteoarthritis and spinal involvement. Studies evaluating the different therapeutic management modalities as a whole remain limited [3-6].

In Chad, data on therapeutic practices for osteoarthritis are poorly documented. In this context, analyzing the strategies used in hospital practice is useful for better understanding management modalities and the challenges they face. The objective of this study was to describe therapeutic practices for osteoarthritis at the CHU-RN of N'Djamena and to analyze the main challenges of its management in the Chadian context.

2 METHODS

2.1 Study setting and design

This was a retrospective cross-sectional study conducted in the Department of Internal Medicine of the National Reference University Hospital of N'Djamena, Chad. The study included patients managed for osteoarthritis during the period defined in the initial study.

2.2 Study population

Patients with osteoarthritis diagnosed according to clinical, radiographic and/or diagnostic criteria used in the initial study were included.

Incomplete records that did not allow analysis of therapeutic management data were excluded.

2.3 Data collected

The data collected included:

- essential sociodemographic characteristics;
- osteoarthritis site;
- duration and circumstances of management;
- main clinical manifestations;
- available radiographic data;
- comorbidities;
- prescribed or received treatments.

2.4 Therapeutic modalities studied

Therapeutic management was analyzed according to the different modalities used in the initial study:

- Non-pharmacological measures:
- lifestyle and dietary advice;
- weight reduction when indicated;
- adapted physical activity;
- rehabilitation/physiotherapy;
- patient education.

2.5 Pharmacological treatments

Analgesics; non-steroidal anti-inflammatory drugs; symptomatic slow-acting drugs when prescribed; other analgesic or adjunctive treatments.

Local and interventional treatments: joint injections when performed; other available local treatments.

Surgical management, when indicated and documented, was also recorded.

2.6 Ethical considerations

The study protocol was conducted in accordance with the principles of anonymity and confidentiality of patient data. Authorization to collect and use the data was obtained from the administration of the CHU-RN and from the research coordinator of the Faculty of Human Health Sciences of the University of N'Djamena.

2.7 Statistical analysis

Data were entered and analyzed using the software used in the initial study.

Qualitative variables were expressed as numbers and percentages. Quantitative variables were expressed as mean $\pm$ standard deviation or median with range, according to their distribution.

Therapeutic management was described according to the osteoarthritis site and the main clinical characteristics of the patients. When the available data allowed, therapeutic modalities were compared according to the different sites and patient characteristics.

The statistical significance threshold was set at $p < 0.05$.

3 RESULTS

3.1 Overall management

During our study, 894 patients with osteoarthritis were included in the therapeutic analysis. Management was based on a multimodal approach combining general measures, pharmacological treatments, local treatments, physical modalities and, in some cases, surgical management.

Overall, all patients received information and education, particularly regarding the benefits of weight reduction when indicated and regular physical activity, especially walking, in osteoarthritis management.

3.2 Pharmacological treatment

Pharmacological treatment was the main therapeutic modality. Analgesics were widely used, with paracetamol predominating, prescribed in 782 patients (87.5%). Non-steroidal anti-inflammatory drugs (NSAIDs) were used in 591 patients (66.1%). Tramadol was prescribed in 321 patients (35.9%), while opium powder was used in 43 patients (4.8%).

Symptomatic slow-acting drugs for osteoarthritis (SYSADOAs) were prescribed in 475 patients (53.1%).

Furthermore, some patients had associated rheumatoid arthritis requiring specific disease-modifying treatment. Methotrexate was used in 348 patients (38.9%), hydroxychloroquine in 329 patients (36.8%), and sulfasalazine in 51 patients (5.7%). In our analysis, these treatments were considered treatments for the associated inflammatory disease and not specific treatments for osteoarthritis.

Among adjunctive treatments, pregabalin was prescribed in 239 patients (26.8%), gabapentin in 46 patients (5.2%), and omeprazole in 278 patients (31.1%).

3.2.1 Local treatment

Local treatment consisted exclusively of corticosteroid injections, performed in 253 patients (28.3%). No viscosupplementation or joint lavage procedure was reported in our series.

3.2.2 Physical modalities

Non-pharmacological management also included functional rehabilitation. Physiotherapy was performed in 244 patients (27.3%).

3.2.3 Surgical management

Surgical management was performed in 62 patients (6.9% of the study population).

Table 1: Pharmacological treatments prescribed in patients with osteoarthritis

Pharmacological treatments	n	%
Paracetamol	782	87.5
NSAIDs	591	66.1
SYSADOAs	475	53.1
Tramadol	321	35.9
Opium powder	43	4.8
Pregabalin	239	26.8
Gabapentin	46	5.2
Omeprazole	278	31.1
Disease-modifying treatments for associated rheumatoid arthritis*		
Methotrexate	348	38.9
Hydroxychloroquine	329	36.8
Sulfasalazine	51	5.7

* These treatments concerned patients with associated rheumatoid arthritis and were not considered specific treatments for osteoarthritis.

Table 2: Non-pharmacological, local and surgical treatments

Therapeutic modalities	n	%
Patient education and lifestyle advice	894	100.0
Physiotherapy	244	27.3
Intra-articular corticosteroid injection	253	28.3
Viscosupplementation	0	0.0
Joint lavage	0	0.0
Surgery	62	6.9

4 DISCUSSION

Our study aimed to describe the therapeutic management modalities for osteoarthritis in our setting, specifying the roles of pharmacological treatments, local treatments, physical modalities, and surgery.

Epidemiologically, our results are consistent with the profile observed in several African series. In Bouaké, women represented 72.3% of patients, and overweight or obesity accounted for 69.75%; knee osteoarthritis was bilateral in 54.5% of cases.

In Ouahigouya, Burkina Faso, Sompougdou et al. also found a clear female predominance (71.6%), obesity in 47.7% of patients, and bilateral involvement in 57.8% of cases. Radiographic grades 3 and 4 represented 70.6% of patients [6,7].

The Guinean series by Barry et al., conducted at Ignace-Deen Hospital in Conakry, showed an even more marked profile: women accounted for 88.2% of patients, obesity affected 70.5%, and bilateral involvement was present in 54.9% of cases. Severe disability according to the Lequesne index was found in 45.1% of patients. Thus, despite differences in

frequency across series and populations, female predominance, excess weight, bilateral involvement, and presentation at a relatively advanced stage appear to be recurrent characteristics of knee osteoarthritis in several sub-Saharan African populations [8].

In our series, medication was the primary treatment. Paracetamol was used in 87.5% of patients, NSAIDs in 66.1%, level II analgesics in 35.9%, and SLAs in 53.1%. Corticosteroid injections were administered in 28.3% of cases, while 27.3% of patients received physiotherapy and 6.9% underwent surgical intervention.

These results are comparable to those reported in sub-Saharan Africa, particularly in Côte d'Ivoire. In Bouaké, Kouakou et al., in a series of 119 patients with knee osteoarthritis, reported NSAID prescriptions in 61.35% of patients, level II analgesics in 20.2%, corticosteroid injections in 25.2%, and rehabilitation in 34.45% [7-13]. The frequency of NSAIDs observed in our study (66.1%) is therefore very close to that of Bouaké (61.35%). However, the use of level II analgesics was more frequent in our series (35.9% versus 20.2%). This difference could be related to more severe pain symptoms or different prescribing practices, but our study does not allow us to determine the precise cause [14-18]. The frequency of injections was also comparable between the two series: 28.3% in our study versus 25.2% in Bouaké. In contrast, physiotherapy was less frequently performed in our series (27.3%) than in Bouaké (34.45%). This difference could reflect difficulties in accessing rehabilitation, limited availability of physiotherapists, or insufficient referral of patients to this therapeutic modality [19-21]. In our study, all patients received advice regarding weight loss and physical exercise, while structured physiotherapy was only provided to 27.3% of patients. There is therefore a difference between education and lifestyle advice, on the one hand, and supervised functional rehabilitation, on the other.

Barry et al. found moderate disability in 50% of patients and severe disability in 45.1%, with limping in 51.9% and limited walking distance in 50%. These data show that knee osteoarthritis in sub-Saharan Africa is not merely a painful condition but also an important cause of functional limitation and disability. They reinforce the value of early management incorporating adapted physical activity, weight reduction, rehabilitation, and pain control. Methotrexate (38.9%), hydroxychloroquine (36.8%), and sulfasalazine (5.7%) reported in our table should not be presented as treatments for osteoarthritis. They correspond to patients with associated rheumatoid arthritis and should be analyzed separately as treatments for the concomitant inflammatory disease [22-25].

5 CONCLUSION

This study highlights osteoarthritis management based mainly on pharmacological treatments, with substantial use of paracetamol and NSAIDs. Injections and physiotherapy played a complementary role, while surgery was used in a smaller proportion of patients. Comparison with African data shows practices broadly similar to those reported in other sub-Saharan African centers, particularly regarding the use of NSAIDs, injections, and rehabilitation. However, the relatively limited use of physical modalities highlights the need to strengthen non-pharmacological approaches. Thus, optimizing osteoarthritis management in sub-Saharan Africa should favor a multimodal approach combining rational symptomatic treatment, patient education, adapted physical activity, weight management, rehabilitation, and targeted use of interventional and surgical treatments.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The authors declare that they have no conflict of interest regarding this work.

Authors' contribution

All authors contributed equally to the design, data collection, analysis, and writing of the manuscript.

Statement of ethical approval

The study protocol was conducted in accordance with the principles of anonymity and confidentiality of patient data. Authorization to collect and use the data was obtained from the administration of the CHU-RN and from the research coordinator of the Faculty of Human Health Sciences of the University of N'Djamena.

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