

Knee Osteoarthritis in Rheumatological Consultation at the National Hospital of Niamey: Epidemiological, Clinical, Radiological and Therapeutic Aspect

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Abstract: ***Introduction:** Knee osteoarthritis is a chronic degenerative rheumatic disease that constitutes a real public health problem. It is caused by several risk factors, the main ones being obesity, genetic predisposition, and aging. The objective is to determine the epidemiological, clinical, radiological, and therapeutic aspects of knee osteoarthritis and contribute to improving its management in Niger. **Method:** This was a prospective, descriptive, cross-sectional study conducted over a three-month period from March 2020 to June 2020 in the rheumatology department of the National Hospital of Niamey. **Results:** A total of 978 patients were seen in rheumatology consultations during the study period, 106 patients suffered from knee osteoarthritis, representing a hospital frequency of 10.84%. Females predominated at 85.85% with a sex ratio of 6.06. The average age of patients was 56.29 years, ranging from 33 to 91 years. Housewives were the most represented socio-professional group at 56.60%. Clinically, pain was the main reason for consultation, with the visual analog scale ranging from 7 to 10 being the most common at 42.45%. Axial deviation was valgus in 21.70% of cases and varus in 19.81%. The average body mass index was 31.8 kg/m². The average Lequesne index was 10.01, with extremes ranging from 2 to 17. Radiologically, joint space narrowing was present in 100% of cases, osteophytes in 78.30%, and subchondral bone condensation in 100%. According to the Kellgren-Lawrence classification, stage 2 was the most common, occurring in 28.30% of cases. Treatment consisted mainly of medication combined with rehabilitation and lifestyle changes. 83.02% received slow-acting anti-arthritis, 37.74% received intra-articular corticosteroid injections, 25.47% received joint lavage, and 39.62% received functional knee rehabilitation. **Conclusion:** This study shows that knee osteoarthritis is also common in sub-Saharan Africa. The main contributing factors identified were female gender and obesity.*

Keywords: Gonarthrosis epidemiological, clinical and treatment Niamey HNN

1.Introduction

Osteoarthritis is a real public health problem. It is the second leading cause of disability after cardiovascular disease and the most common rheumatic disease [1,2]. Gonarthrosis is a chronic degenerative rheumatic disease and one of the most common sites of degenerative cartilage disease, causing incapacity and even disability in people aged 45 and over [3]. In older adults, chronic knee pain associated with knee osteoarthritis encourages rest and a sedentary lifestyle due to the mechanical nature of the pain associated with this degenerative condition, which is linked to movement. This results in a gradual reduction in daily activities and a restriction in social participation, leading in the medium to long term to a loss of independence for the elderly person [4]. In addition, knee osteoarthritis associated with a certain degree of muscle atrophy and a decrease in proprioceptive reflexes, which are common in older adults, increases the risk of falls and fractures with the resulting possible complications of pressure sores. Several risk factors, including obesity, genetic predisposition, and aging, are the main ones. The objective of the study is to determine the epidemiological, clinical, radiological, and therapeutic aspects of knee osteoarthritis in the rheumatology department of the National Hospital of Niamey (NIGER) in order to contribute to improving care.

2.Patients and Methods

This study was conducted in the rheumatology department of the HNN. It was a prospective descriptive study over a three-month period from March 1, 2020, to June 1, 2020. All patients with knee osteoarthritis who met the ACR criteria, had interpretable radiological findings, and were cooperative were included in the study. Patients with knee osteoarthritis who had non-interpretable radiological findings and were under the age of 15 were not included in the study. Data was collected using a pre-established survey form and a census conducted through individual interviews and physical examinations. The inclusion and exclusion criteria and the census method enabled us to collect 106 cases of knee osteoarthritis out of a total of 978 patients consulted during the study period. The technique used was an individual interview with patients with knee osteoarthritis who met the inclusion criteria. Data collection was carried out manually using a pre-established individual survey form. All our patients underwent a complete clinical examination. For this study, the variables studied were those related to sociodemographic characteristics: age, sex, occupation, socioeconomic status, personal and family history, reason for consultation, clinical signs, radiological signs, and treatment. Weight and height were recorded, which allowed us to calculate body mass index (BMI) using the Quételet

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formula: weight in kilograms divided by height squared in meters. According to the WHO classification, BMI is:

- ✓ Normal ≤ 25
- ✓ Pre-obese 25 to 29.99
- ✓ Class I obesity from 30 to 34.99
- ✓ Class II obesity from 35 to 39.99
- ✓ Class III obesity ≥ 40

The Lequesne index was measured based on pain or functional impairment, maximum walking distance, and other difficulties in daily life such as squatting, kneeling, going up or down stairs. Prosthesis fitting is recommended for an index between 10 and 12. The visual analog scale (VAS) was used to assess pain. It is measured using a ruler with a double scale from 0 to 10 and, on the other side, an image of a face showing different expressions depending on whether the pain is mild, moderate, intense, or very intense. This is shown to the patient, who indicates their level of pain, and a score is recorded. The radiological examination allowed the diagnosis of gonarthrosis to be made on the front and profile images, certain osteochondral lesions to be detected, and a radiological classification of gonarthrosis to be established according to the KELLGREN LAWRENCE scale classification.

Stage 0: no radiological changes related to OA

Stage 1: narrowing of the joint space with or without osteophytes

Stage 2: absence of osteophytes or slight joint narrowing

Stage 3: moderate osteophytes and joint narrowing

Stage 4: sclerosis of the subchondral bone, large osteophytes, marked joint space narrowing, and severe sclerosis of the subchondral bone.

The therapeutic indication was based on pain, functional impairment of the limb, radiological appearance, complications, or advanced stage of knee osteoarthritis. The graphs and tables were entered and produced using Microsoft Excel 2016, the data was analyzed using Epi Info, and the final report was entered using Microsoft Word 2016. Data was collected after obtaining informed consent from patients. The confidentiality of each patient's personal information was preserved. A few difficulties hampered the smooth running of this study, notably the COVID-19 pandemic, which slowed down consultations. Limitations of the study: It was conducted in a hospital setting, so it cannot be extrapolated to the general population.

3. Results

• Hospital frequency

During the study period, 978 patients were seen in rheumatology consultations. 106 patients suffered from knee osteoarthritis meeting the ACR criteria, representing a frequency of 10.84%.

• Sociodemographic characteristics

Women accounted for 86% of patients, giving a sex ratio (F/M) of 6.06. The average age at onset of the disease was 56, with extremes of 33 and 91. The 40-50 age group was

the most represented, at 32.07%. Housewives were the most represented socio-professional group, at 56.60%, and 86.79% were from the city of Niamey, with low income in most cases (55.66%).

• Clinical aspects

Clinically, 36.79% had moderate lameness and 34.91% had severe lameness. The condition was unilateral in 19 patients (17.92%): right knee in 14 patients, left knee in 5 patients, and bilateral in the other 87 (82.08%). Medial femoropatellotibial osteoarthritis was the most common (53.78%), and lateral femoropatellotibial osteoarthritis was the least common (1.88%). Medial femorotibial osteoarthritis was present in 28.30% of patients, and medial and lateral femorotibial and patellar osteoarthritis in 16.04%. Axial deviation was valgus in 21.70% of patients and varus in 19.81%.

Pain was the main reason for consultation, with 42.45% scoring between 7 and 10 on the VAS (Figure 1).

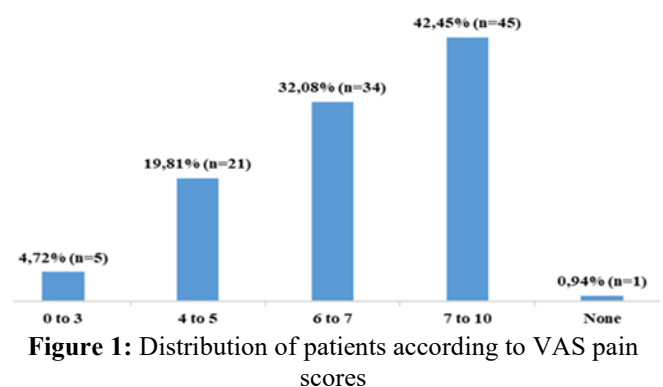


Figure 1: Distribution of patients according to VAS pain scores

Table I: Distribution of patients according to BMI

Body mass index	Effects	Percentage
<25(normal)	17	16.03
[25 à 20[(pre-obesity)	31	29.25
[30 à 35[(obesity class I)	28	26.42
[35 à 40[(obesity classe II)	17	16.03
≥ 40 (obesity classe III)	13	12.27
Total	106	100

The average body mass index was 31.8 kg/m², with 29.25% pre-obesity and 26.42% class I obesity.

Table II: Distribution of patients according to ACR clinical signs

ACR clinical signs	Number	Percentage
Pain or discomfort	106	100
Morning stiffness lasting less than 30 minutes	106	100
Joint crepitus or grating	73	68.87
Periarticular bone hypertrophy	44	41.51
Absence of local heat on palpation	106	100
Age over 50	67	63.21

Analysis of this table shows that pain, morning stiffness, and absence of local heat were each present in 100% of cases, planing was present in 68.8% of cases, periarticular bone hypertrophy was present in 41.51% of cases, and age over 50 was present in 63.21% of cases.

Table III: Distribution of patients according to Lequesne's functional pain index

Lequesne's functional pain index	Number	Percentage
2 to 4(minimal)	11	10.38
5 to 7 (medium)	19	17.92
8 to 10(significant)	24	22.64
11 to 13(very important)	29	27.36
14 (severe)	23	21.7
Total	106	100

This table shows that 27.36% of patients had a Lequesne functional index between 11 and 13. The average index was 10.01.

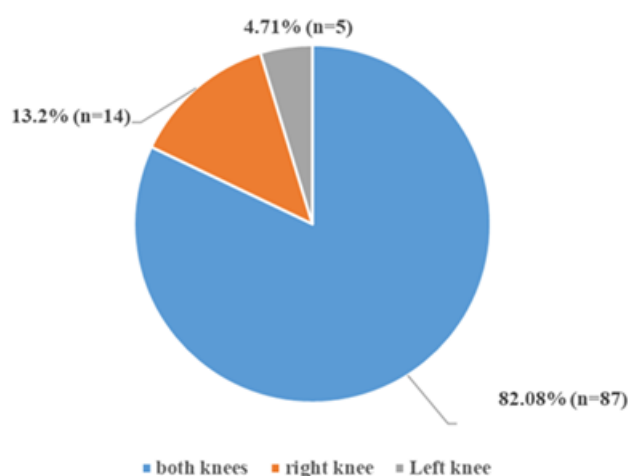
• Paraclinical aspects

Table IV: Distribution of patients according to radiological signs

Radiological signs	Yes n (%)	No n (%)
Joint Space narrowing	106(100)	0(00)
Osteophytosis	83(78/30)	23(21.70)
Suchondral boneondensation	106(100)	0(00)

Radiologically, joint space narrowing was present in 100% of cases, osteophytes in 78.30% and subchondral bone condensation in 100%.

The figure below shows that both knees were affected in 82.08% of cases, the right knee in 13.02% of cases, and the left knee in 4.71% of cases.

**Figure 2:** Distribution of patients according to the affected knee**Table V:** Distribution of patients according to the stages of the Kell Green Lawrence scale

Stages	Number	Percentage
Stade 0	16	15.09
Stade 1	12	11.32
Stade 2	30	28.30
Stade 3	28	26.42
Stade 4	20	18.87
Total	106	100

According to the Kellgren-Lawrence classification, stage 2 was the most common, affecting 28.30% of patients, while 18.87% were at stage 4.

• Therapeutics

Treatment was mainly drug-based: analgesics, non-steroidal anti-inflammatory drugs, muscle relaxants were used in 100% of cases, anti-arthritis drugs were used in 83% of cases, intra-articular corticosteroid injections were used in 37.74% of cases, and functional knee rehabilitation and lifestyle and dietary measures were used in 39.62% of cases. 2.83% of patients underwent surgical treatment. 83.02% of patients received slow-acting anti-arthritis drugs, 25.47% of patients underwent joint lavage, and 39.62% underwent joint arthroplasty.

4.Discussion

At Niamey National Hospital, knee osteoarthritis accounts for a significant proportion of rheumatology consultations (10.84%). However, this study has limitations; it was conducted in a single hospital and during the COVID period, which explains the low number of patients seen in consultation. As knee osteoarthritis mainly affects older people, the average age of patients was 56, ranging from 33 to 91. This average age is similar to that found in studies conducted in Niger and Morocco [5-6]. However, lower results were reported by Oualgouh M in 2016 in Morocco and Oumarou Z in 2010 in Niger [7, 8]. Females predominated in this study, accounting for 85.85% of patients. The same result was found by Ouankitan O et al. in 2009 in Togo [9], Imene K et al. in Tunisia in 2014 reported a lower result of 60% [10], while Azzouzi H in Morocco in 2013 and Ouédraogo DD marou Z in Burkina Faso in 2008 reported 96.2% and 91.5% respectively [6,13]. Risk factors associated with this condition are more common in women (overweight, menopause). 26.42% of patients were class I obese, while Ouédraogo DD's study in Burkina Faso found 42.4%. Housewives represent the most affected professional group with 56.60%. This result is similar to that of Azzouzi H in 2013 in Morocco and Aboubacar S in 2008 in Bamako, who found 73.3% and 52% of housewives, respectively [6, 11]. The study was conducted in a public center accessible to all socio-professional groups, and housewives are the most constrained by domestic tasks requiring a lot of movement and therefore excessive use of the knees. Joint space narrowing and subchondral bone condensation were found in 100% of cases, and osteophytes were present in 78.3%. These results differ from those of Bacharou S in 2011 in Niger, Ibrahim B in 2019 in Niger, and Oumarou Z in 2010 in Niger, who found joint space narrowing in 100% of cases, osteophytes in 19% to 47.5%; 77.8% of cases, and subchondral bone condensation in 19%; 42.5%; 88.9% of cases [6,8,12]. This difference can be explained by the time taken before the first consultation. In general, the management of patients suffering from knee osteoarthritis, due to its multiple etiologies, is multidisciplinary, requiring the active participation of a rheumatologist, orthopedic surgeon, and many others, such as a nutritionist and physical and functional rehabilitation physician. Given the importance of comorbidity between obesity and knee osteoarthritis, lifestyle and dietary measures have been recommended for all patients to enable them to reduce excess weight, pain, and functional impairment and make treatment more effective in order to avoid complications that could compromise the functional

prognosis. Physical exercise is an integral part of the management of obese patients with knee osteoarthritis. In this study, the use of analgesics in the symptomatic treatment of pain in cases of knee osteoarthritis is the norm, as pain is the primary reason for consultation. Thus, analgesics, non-steroidal anti-inflammatory drugs, muscle relaxant are used in 100% of cases, anti-arthrosics are used in 83% of cases, intra-articular corticosteroid injections in 37.74% of cases, and physical therapy in 39.62% of cases. It should be noted that 2.83% of patients underwent surgical treatment. These results differ from those of Ibrahim Boubé Oumarou in 2019 in Niger, who found that 92.5% of patients used analgesics and anti-inflammatory drugs, 2.5% received corticosteroid injections, 25% underwent physical therapy, and 72.5% underwent surgery [5,13]. This difference could be explained by the study setting, as Ibrahim B's study was conducted in a surgical department during a prosthesis implantation campaign.

5.Conclusion

The aim of this work was to conduct a prospective study on gonarthrosis, which is a common condition in the elderly and whose prevalence increases with age and constitutes a public health problem. The clinical and socio-functional characteristics of older patients should be taken into account in the care strategy to reduce physical, functional and psychological consequences for elderly patients with gonarthrosis but also hygiene measures against obesity in young subjects.

References

- [1] X. Knight Arthrosis. Rev. Prat 2003; 53: 665-74
- [2] P.Ravaud, Mr Dougados . Definition and epidemiology of gonarthrosis Rev. Rhum Ed Fr 2000; 3: 130-137
- [3] J. Ankri Economic and social problems caused by the condition of an elderly person's locomotive Rev. Rhum Ed Fr 2004; 6: 539-543
- [4] L. Leclerc, Mr. Rossignol. Functional retention of arthritis: results from a national survey of 10,000 patients consulting for arthritis Rev Rhum Ed Fr. 2005; 5:404-410.
- [5] Ibrahim B.O, Lesional Epidemiological and Therapeutic aspect prospective study of 40 cases at HGR Medical Thesis 2019, Abdou Moumouni University, FSS
- [6] Azzouzi .H Place of alternative and complementary medicine in gonarthrosis patients about 105 cases 2013 medical thesis, Sidi Mohammed Ben Abdellah University of Morocco No. 018/13
- [7] Owl. M Therapeutic education and rehabilitation in the management of moderate gonarthrosis about 53 cases 2016 medical thesis, Sidi Mohammed Ben Abdellah University of Morocco No. 055/16
- [8] Oumarou. Z Place osteotomies in the treatment of femoral and lateral tibial gonorrhea Retrospective study of 36 cases Medical thesis 2010, Abdou Moumouni University of Niamey, FSS No. 1727.
- [9] Oniankitan. O and AL Gonarthrose in rheumatology consultation at Lomé (Togo) about 993 patients Mali Medical Review (2009)

- [10] Immediately. K and AL Epidemioclinical Profile of the Elderly Subject Gonarthrosis Review Medical Tunisia 2014 vol. 92 (n°08):335-34
- [11] Aboubacar S.N Radiological, and Clinical Epidemiological Study of Gonarthrosis in the Logical Trauma Orthopaedic Surgery Department at Gabriel Touré Hospital about 111 cases Medical thesis 2008, University of Bamako
- [12] Adamou B.S., gonarthrosis and obesity prospective study of 37 cases at HNN Rheumatology Department 2011 medical thesis, Abdou Moumouni University of Niamey, FSS
- [13] Ouedraogo DD and AL Risk factors associated with gonarthrosis in rheumatology consultation at Ouagadougou (Burkina Faso) Med Trop 2008; 68: 597-599