Knee pain in outpatient at the National Hospital Ignace Deen, Conakry, Guinea

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Abstract

Background: Knee pain is a common complaint in primary care.
Objective: The aim of this study was to determine the profile of knee pain at the Ignace Deen National Hospital (HNID) in Conakry, Guinea.
Design: This was a two year descriptive prospective study.
Methods: All patients who had consulted for a knee pain were included.
Results: Knee pain represented 4.1% of the reasons for consultation. The average age was 53.8 years with extremes of 4 and 88 years. We noted a female predominance at 53.83% with a sex ratio H/F: 0.8. Axial disorders of the lower limbs accounted for 58.6% of knee pain risk factors. The mean intensity of pain (VAS) was 58.2mm with extremes of 20 and 80mm. Standard radiography was the most performed balance (63.4%). Knee osteoarthritis was the most common condition in 50.9% of cases. The level I analgesic treatment was the most prescribed at 69.7%. The average Lequesne index was 6.7 with extremes of 1 and 15.
Conclusions: Knee pain remains a public health problem, particularly in developing countries. In our study the risk factors were dominated by age, overweight and axial deformities with a female predominance. Knee pain is becoming increasingly important in Guinea. This study has enabled us to identify the various knee pathologies that are most frequent in our context and has the merit of being one of the first studies to describe the profile of knee pain in sub-Saharan Africa.

Key words: Knee pain, Knee osteoarthritis, Outpatient, Guinea

Introduction

Knee pain is defined as pain in the knee area, either mechanical or inflammatory in origin. Knee pain is a common complaint in primary care and is more common in physically active people than in sedentary populations[1]. The prevalence of knee pain is 22.7% in the general population and 7.2% in adolescents[2-4]. These numbers differ between studies, reaching up to 6% of all primary care consultations[5]. In Africa, in Togo in 2015, the reported frequency of knee pain was 23%[6]. In South Africa, a study of high school basketball players found a prevalence of 13% and 16% respectively for girls and boys[7]. In Cameroon, in a study of knee osteoarthritis, 100% of patients presented with knee pain[8]. Thus the aim was to determine the profile of knee pain at the Ignace Deen National Hospital in Conakry.

Materials and methods

This was a prospective descriptive study lasting two years from 1st October 2018 to 31st September 2020, conducted in the Rheumatology and Physical and Rehabilitation Medicine Departments of the Ignace Deen National Hospital which are reference centers for the management of musculoskeletal pathologies in Guinea. Our study included all patients seen for knee pain. All patients with traumatic knee pain or post-surgical origin and patients with knee prostheses were excluded.

The following data were collected;

Age, sex

Risk factors: Deformity of the lower limbs; intense sports activity involving lower limb action eg running; history of knee trauma; carrying of heavy loads; wearing of high-heeled shoes, kneeling at work.

The ratio of weight (kg) to height squared (m²) was used to calculate the body mass index; overweight was

defined as a Body Mass Index (BMI) greater than 25 kg/m² and obesity BMI greater than 30 kg/m².

Clinical data: Date of onset and duration of symptoms location of pain and intensity using 100 mm: Visual Analog Scale (VAS) minimal VAS 10-30 mm; moderate 30- 50 mm; intense 50-70 mm and very intense greater than 70. Clinical examination patello-femoral joint (Rabot sign) , patellar tap for joint fluid lower limb deformities (genu valgum varum and recurvatum and flexion deformity periarticular lesions Iiotibial band syndrome prepatellar popliteal and pes anserinus/crows foot bursa.

Laboratory investigations C-reactive protein; CRP sedimentation rate; (SV) uric acid; cyclic antibodies citrullinated peptides and rheumatoid factor RF. Aspiration and examination of fluid from swollen knee joint for cell count monosodium urate and calcium pyrophosphate dihydrate crystals gram stain and culture for bacteriae standard radiography and ultrasonography. Knee osteoarthritis classified according to the Kellgren and Lawrence scale. Analgesics non steroidal anti inflammatory drugs disease modifying drugs for RA and standard drugs for gout, physiotherapy was employed where appropriate. Quality of life was assessed with the WOMAC (Western Ontario and McMaster Universities Osteoarthritis Index) and Lequesne index. Informed consent was obtained from the patients before they were subjected to our questionnaires. All data were collected on a survey form and processed by Epi Info. For categorical variables the Chi-square test was calculated and any difference associated with a probability value (p) less than 0.05 was considered statistically significant.

Results

During the study 208/5024 patients presented with knee pain, (4.1%.), socio demographic and clinical details are listed in Table 1. Of these 208 patients, 112 (53.8%) were women. The average age was 53.8±16.5 years axial deformities of the lower limbs were found in 122 (58.6%) patients carrying heavy loads 69 (33.1%) patients and a family history of knee pain in 40 patients (19.2%). The mean duration to diagnosis was 10.5 ± 21.8 months Bilateral knee pain was noted in 107 (51.4%) patients with a progressive onset in 163 (78.3%) patients anterior knee pain was located in 170 (81.7%) patients. The average VAS was 58.2±10.4mm, severe in 94 (45.1%) patients and moderate in 70 (33.6%). The average BMI was 25.7± 3.3 kg/m² with approximately one third of patients were (30.7%) overweight and 9.1% obese. Standard knee radiography was performed in 162 patients (77.8% of cases); joint fluid analysis in 86 (41.3%) patients. Bacteriae and a raised white cell count were found in 10 (11.6%) joint fluids Microcrystals were found in 32 (15.3%) patients with calcium pyrophosphate dehydrate crystals in 14 (6.6%) patients and monosodium urate crystals in 18 (8.7%) patients. The most common diagnosis was osteoarthritis in 106 (50.9%) patients followed by rheumatoid arthritis in 28 (13.4%) patients and gout in 22 (10.5%) (Table1). The Kellgren and Lawrence OA classification grades were grade II 25.9%, grade III 17.3% and grade IV 7.7% of cases: NSAIDs: were used in 34.6%; paracetamol: 23%; NSAIDs + paracetamol: 12%); Corticosteroid injection infiltration (46.6% of cases); slow-acting anti-rheumatic and antibiotics (in 33.6% and 14.4%respectively). The mean Lequesne index was 6.7±2.1 range `1-15 functional disability was moderate in 111 patients (53.3% of cases) and severe in 58 patients (27.8% of cases). The mean WOMAC index was 44.7±12 range 14 -76.. Risk factors associated with knee pain are presented in Table 2. Age, gender and axial limb deformities were statistically significant in the chi-square test.

Table 1: Distribution of patients according to socio-demographic and clinical data

Variables	All patients (N = 208)
Socio-demographic data	
Gender, female, n (%)	112 (53.8)
Age at diagnosis Mean (SD years)	53.8±16.5
Deformity of lower limbs, n (%)	122(58.6)
BMI at diagnosis Mean ± SD	25.7 ± 3.3
Clinical data	
Mechanical pain, n (%)	142 (68.2)
Bilateral, n (%)	107 (51.4)
Mechanism of onset, unknown, n (%)	180 (86.5)
VAS, mm mean ±SD	58.2 ± 10.4
Mean time from first symptoms to consultation (months)	10.5 ± 21.8
Physical sign, Rabot sign, n (%)	152 (73)
X-ray, n (%)	162 (77.8)
CRP[a] (mg/dl) mean± SD	40 ± 26.3
SV[b] (mm/hour) mean± SD	28.2± 5
Uric acid (mg/dl) mean ± SD	2.6±1.6
Joint fluid microcrystals, monosodium urate, n (%)	18 (8.7)
Kellgren and Lawrence, grade II, n (%)	54 (25.9)
Level I analgesic, n (%)	145 (69.7)
Corticosteroid infusions, n (%)	97 (46.6)
Physical therapy, n (%)	16 (7.6)
Lequesne Index	6.7±2.1
WOMAC[c] Index	44.7±12.4

[a]CRP C-reactive protein[b] SV sedimentation rate
[c]WOMAC Western Ontario and McMaster universities osteoarthritis index

Figure 1: Distribution of patients by diagnosis

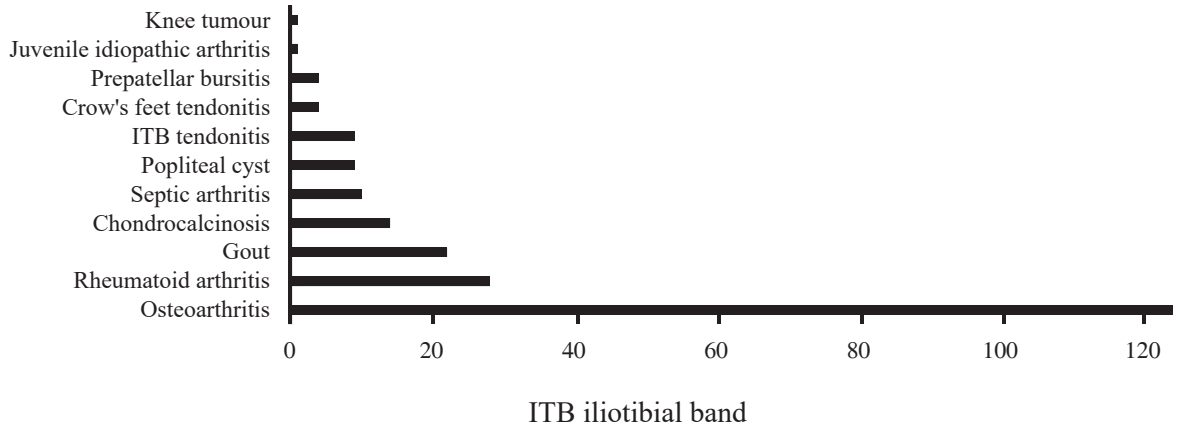

Table 2: Factors associated with knee pain (chi-square test)

Variables	Frequency	P-value
Gender		
Female	112 (53.8%)	0.06
Male	96 (46.1%)	
Age range (years)		
4 - 23	10 (4.8%)	
24 - 43	55(26.4%)	
44 - 63	95 (45.1%)	0.03
64 - 83	47 (22.6%)	
>83	2 (0.9%)	
Body mass index		
Underweight (<18.5)	1 (0.4%)	
Normal weight (18.5 - 24.99)	57 (27.4%)	
Overweight (25 - 29.99)	64 (30.7%)	0.035
Obese (>30)	19 (9.1%)	
Risk factors		
Deformity of the L[l]a	122 (58.6%)	0.005
Heavy load carrying	69 (33.1%)	
Intense sports activity	10 (4.8%)	
Menopause	22 (10.5%)	
Wearing high-heeled shoes	20 (16.8%)	
Obesity	19 (9.1%)	
Knee-jerk work	2 (0.9%)	

[a]L I Lower limb

Discussion

This study shows that knee pain occupies an important place in outpatient population at the Ignace Deen National Hospital with a frequency of 4.1%. Overweight, limb deformities and carrying heavy loads were the main risk factors found in our study. This was a hospital-based study involving only patients seen in the Rheumatology, Physical and Rehabilitation Medicine Departments, which are the two reference centers for the medical management of musculoskeletal pathologies in Guinea.

The average age at time of diagnosis of our patients was 53.8 years similar to 55 years as reported by Ouédraogo *et al* [9] in Burkina Faso but lower than 58.9 years as reported by Lukusa *et al*[10]

in Congo. Knee pain is associated with an active population linked to injuries due to overwork or knee trauma[11–14]. Our female prevalence at 53.8% is lower than Togo (63%)[15], but much higher on the other hand, than Niger where a male predominance of 61.8% with a sex ratio of 1.62[16]. The predominance of women with knee pain is in part explained by changes at the menopause and excess weight[9,17,18].

The most common cause of pain was mechanical (68.2%) similar to that detected in Madagascar[17] and due mainly to degenerative causes associated with osteoarthritis. We recorded a wide range of intraarticular and periarticular disorders but osteoarthritis was the most common (50.9%) and reflecting worldwide data[20 -23].

Risk factors were dominated by age (p=0.03), overweight (p=0.035), and deformities of the lower limbs (p=0.005). Ouédraogo *et al*[9] in 2008 in Burkina Faso found a mean BMI of 29.5, while Lukusa *et al*[10] in Congo found a mean BMI of 27.9. All these factors contribute to increased biomechanical stress on the knee[19].

In our study the mean VAS was 58.2 severe in almost half and moderate in one third of patients. Samison *et al*[17] reported pain of moderate intensity in 75.5% of cases with a mean VAS of 57.9 mm. However, Owonayo *et al*[24] in Togo reported moderate pain in 31.9% of patients.

In our study, moderate disability was the most frequent with a mean Lequesne index of 6.7±2.1 This is different from the data of Akinpelu *et al*[25] who in their 2009 study on osteoarthritis found extremely severe disability in 35.1% and Ouédraogo *et al*[9] who reported a frequency of 49.2% of very severe disability. This difference could be explained by a moderate Kelgren/Lawrence grade II in our study and the fact that the majority of our patients were active and consulted sooner before disability became severe and hindered their professional activities

Study limitations

The limitations of our study were the size of the sample and the difficulties in performing certain complementary examinations such as MRI. However, this study has the merit of being the first study on the profile of knee pain in Africa.

Conclusion

Knee pain remains a public health problem, particularly in developing countries. In our study the risk factors were dominated by age, overweight and limb deformities with a female predominance. Osteoarthritis was the most frequent aetiology. Further studies are needed to better characterize the profile of these patients in Africa.

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References

1. Kermode T, Cornuz J, Zufferey P, Pasche O. Gonalgies: que faire en médecine de premier recours? [Knee pain in ambulatory practice]. *Rev Med Suisse*. 2014;**10**(452):2238 - 40.
2. Smith BE, Selfe J, Thacker D, Hendrick P, Bateman M, Moffatt F, *et al*. Incidence and prevalence of patellofemoral pain: A systematic review and meta-analysis. *Plos One.* 2018; **13**:0190892.
3. Tuite M, Daffner R, Weissman B, Bancroft L, Bennett D, Blebea J, *et al*. ACR appropriateness criteria acute trauma to the knee. *J Am Coll Radiol*. 2012; **9**:96–103.
4. Florent Gamain. Analyse de pratiques professionnelles concernant la prescription d'IRM du genou dans une population ambulatoire présentant une gonalgie. *Médecine Humaine et Pathologie*. 2018. □dumas-01878787□.
5. Jackson JL, O'Malley PG, Kroenke K. Evaluation of acute knee pain in primary care. *Ann Intern Med.* 2003;**139**:575.
6. Adigo, A, Adjénou KV. Apport de l'IRM dans le diagnostic des pathologies du genou. Revue du CAMES. *Science de la Santé.* 2015; **3**(1): 85.
7. Louw Q. Prevalence of anterior knee pain among young South African basketball players. *South Afr J Physiother* 2003; **59**:20–23.
8. Doualla-Bijaet M, Ngandeu M, Farikou I, Namme Luma H , Tafam Gueleko E , Temfack E *et al.* Aspects cliniques et radiographiques de l'arthrose des genoux à Douala (Cameroun). *J Afr Imag* Méd. 2014; **6**(3):41-49.
9. Ouedraogo Dd, Séogo H, Cissé R, Tiéno H, Ouédraogo T, Nacoulma I, *et al*. Facteurs de risque associés à la gonarthrose en consultation de rhumatologie à Ouagadougou (Burkina Faso). *Med Trop.* 2008; **68**:597- 599.
10. Lukusa A, Malemba J-J, Lebughe P, Akilimali P, Mbuyi-Muamba J-M. Clinical and radiological features of knee osteoarthritis in patients attending the university hospital of Kinshasa, Democratic Republic of Congo. *Pan Afr Med J*. 2019; **34**:29.

11. Job-Deslandre C. Démarche diagnostique des gonalgies chez l'enfant et l'adolescent. *Rev Rhum* 2006; **73**:603–608.
12. Fernandez-Lopez J, Laffon A, Blanco F, Carmona L**.** Prevalence, risk factors, and impact of knee pain suggesting osteoarthritis in Spain. *Clin Exper Rheumatol*. 2008; **26**: 324-332.
13. Legré-Boyer V, Boyer *ET*. Examen clinique d'un genou douloureux. *Rev Rhum Monogr.* 2016; **83**:133–137
14. Aagesen A, Melek M. Choosing the right diagnostic imaging modality in musculoskeletal diagnosis. *Prim Care Clin Off Pract*. 2013; **40**:849–861.
15. Agoda-Koussema LK, Oniankitan O, Abalo GA, Ouro-Kefia DD, N'Dakena KG. Radiographie standard dans les gonalgies non traumatiques aux CHU Tokoin et Campus de Lome. *Mali Med*. 2012; TOME XXVII No. 1: Page 3.
16. Assadeck H, Daouda MT, Djibo FH, Maiga DD, Omar EA. Prevalence and characteristics of chronic pain: Experience of Niger. *Scand J Pain.* 2017; **17**:252–255.
17. Samison LH, Randriatsarafara FM, Ralandison S. Joint pain epidemiology and analgesic usage in Madagascar. *Pan Afr Med J*. 2017; **26**: 77. doi: 10.11604/pamj.2017.26.77.11215. PMID: 28491208; PMCID: PMC5410003.
18. Jones B, Covey C, Marvin Sineath J**.** Nonsurgical management of knee pain in adults. *Am Fam Physician*. 2015; **92**:875–883.
19. Green ST. Syndrome fémoropatellaire : prise en charge clinique. *EMC – Kinésithérapie*. 2005; **1**:101–111.
20. Battu V. Pathologies du genou : appareillage. *Actual Pharm*. 2017; **56**:55–8.
21. Jamard B, Verrouil E, Mazières B. Formes cliniques de la gonarthrose. *Rev Rhum.* 2000; **67**:149–153.
22. Jordan JM, Helmick CG, Renner JB, Luta G, Dragomir AD, *et al.* Prevalence of knee symptoms and radiographic and symptomatic knee osteoarthritis in African Americans and Caucasians: the Johnston County Osteoarthritis Project. *J Rheumatol*. 2007; **34**(1):172-180.
23. Xu X, Yao C, Wu R, Yan W, Yao Y, Song K, *et al*. Prevalence of patellofemoral pain and knee pain in the general population of Chinese young adults: a community-based questionnaire survey. *BMC Musculoskelet Disord*. 2018; **19**:165.
24. Owonayo O, Eyram F, Agoda-Koussema LK, Sika VE, Cyrille TK, Prénam H, *et al.* Facteurs de risque de la gonarthrose en consultation rhumatologique à Lomé (Togo). *Mali Médical.* 2009; **24** (2):.
25. Akinpelu AO, Alonge TO, Adekanla BA, Odole AC. Prevalence and pattern of symptomatic knee osteoarthritis in Nigeria: A community-based study. *The Internet J Allied Health Sci Practice*. 2009; **7**(3): Article 10.