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Spondyloarthritis in the Democratic Republic of Congo

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Complete List of Authors:	Lebughe, Pierrot; Universite de Kinshasa, Internal Medicine de Vlam, Kurt; Katholieke Universiteit Leuven, Skeletal Biology and Engineering Research Center, Department of Development and Regeneration; Universitaire Ziekenhuizen Leuven, Department of Rheumatology Westhovens, Rene; Skeletal Biology and Engineering Research Center, Department of Development and Regeneration; Universitaire Ziekenhuizen Leuven, Department of Rheumatology Mbuyi-Muamba, Jean-Marie ; University Hospital of Kinshasa, Kinshasa, DR Congo, Department of internal medicine,Rheumatology unit Malemba, Jean Jacques; University Hospital of Kinshasa, Kinshasa, DR Congo, Department of internal medicine,Rheumatology unit
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Spondyloarthritis in the Democratic Republic of Congo

Authors

1. **Pierrot Lebughe**
   Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Kinshasa, DR Congo. lebughe7@gmail.com
2. **Kurt de Vlam**
   University Hospitals Leuven, Division of Rheumatology,
   Herestraat 49 box 7003, 3000 Leuven, Belgium. kurt.devlam@uzleuven.be
3. **René Westhovens**
   KU Leuven, Department of Development and Regeneration, Skeletal Biology and Engineering Research Center, University Hospitals Leuven, Division of Rheumatology
   Herestraat 49 box 7003, 3000 Leuven, Belgium. rene.westhovens@uzleuven.be.
4. **Jean-Marie Mbuyi-Muamba**
   Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Kinshasa, DR Congo
   E-mail: mbuyi_muamba@yahoo.fr
5. **Jean-Jacques Malemba**
   Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Kinshasa, DR Congo
   E-mail: jeje_malemba2003@hotmail.com

Corresponding author:
Pierrot Lebughe
Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Po Box 123, Kinshasa XI, DR Congo
lebughe7@gmail.com
Phone: +243 81 025 11 91

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Abstract

Objectives: To determine the spectrum of SpA in outpatients with rheumatic complaints attending two rheumatology practices.

Design: Descriptive cross-sectional multicenter outpatient study.

Setting: The present study analyzed 6 months of cross-sectional data (December 1st, 2012 till May 31th, 2013).

Participants: 984 consecutive patients were recorded from the two rheumatology practices of Kinshasa, Democratic republic of Congo. Sacroiliac joint radiographic lesions were scored with the modified New York criteria. BASDAI and BASFI were evaluated in axial SpA.

Interventions No interventions

***Primary and secondary outcome measures*:** The primary efficacy end point was the prevalence of SpA and the secondary efficacy were the spectrum of SpA and its subtypes.

Results One hundred five patients (10.7%) were diagnosed among 984 rheumatologic outpatients with a sex ratio (male to female) of 1.4. The average age at the onset of the disease was 41.3±12.4 years. Non-radiographical axial spondyloarthritis was the most frequent subtype (4.98%) followed by reactive arthritis (4.27%). Other subtypes were: ankylosing spondylitis (1.02%), psoriatic arthritis (0.1%), SAPHO syndrome (0.1%) and IBD associated arthritis (0.1%). Mean BASDAI and BASFI in axial SpA were 42.7/100 and 46.4/100 respectively. Peripheral enthesitis was found in 43% of SpA patients and uveitis (10.4%) was the most frequent extra-articular manifestation. We did not detect any family history. Median erythrocyte sedimentation rate and C reactive protein were 37 (range: 7-110) mm/h and 22 (range: 4-48) mg/l respectively.

Conclusions This hospital-based study suggests a substantial occurrence of some subtypes of SpA in central Africa. A population-based study is needed.

Keywords: Spondyloarthritis. Democratic Republic of Congo.

Strengths and limitations of this study

- To the best of our knowledge, this is the first study describing more detailed the spectrum of Spondyloarthritis in Kinshasa, Democratic republic of Congo.
- In this hospital-based study, diagnostic criteria applied by rheumatologist have improved clinical diagnosis while the application of the criteria of Amor and ESSG in medical records might lead to underdiagnosis.
- A population-based study will be need to describe the phenotype and genotype of Spondyloarthritis in central Africa.

Introduction

SpA is a heterogeneous group of mostly chronic interrelated inflammatory rheumatic diseases that share a common genetic predisposition and specific clinical characteristics such as spinal inflammation, asymmetric peripheral arthritis, dactylitis and enthesitis (1) but also common extra-articular features as uveitis, psoriasis and inflammatory bowel disease.

Based on the "Assessment of SpondyloArthritis international Society" (ASAS) classification criteria, SpA can be divided into two subsets: axial SpA (axSpA) including ankylosing spondylitis (AS) and non-radiographical axial spondyloarthritis (nr-axSpA) and also peripheral SpA, including reactive arthritis (ReA), psoriatic arthritis (PsA), enteropathic arthritis and juvenile SpA (2).

The spectrum of SpA in sub-Saharan Africa remains poorly defined. In African black populations, SpA is considered to be extremely rare explained in part by the low prevalence of HLA-B27 (3-6). A completely different environment on top of a different genetic background might also be responsible for the rarity as well for a different disease presentation (7-11). Few studies reported on the epidemiological, clinical, radiological features of SpA in sub-Saharan populations (3-6, 12). These studies are mostly older, biased because based on hospital cohorts and suggest differential epidemiological and clinical aspects of SpA in our region. In DR Congo, data on SpA are also scarce. A first hospital-based study reported a prevalence of 7.5% among patients attending the University Hospital of Kinshasa (UHK) for rheumatic complaints (13). The purpose of this present study was to report in a more detailed way the spectrum of SpA and its subtypes in patients attending two rheumatology units in DR Congo.

Methods

This was a cross-sectional study conducted in the department of internal medicine of the University Hospital of Kinshasa and the Provincial General Hospital Kinshasa (PGHK) (Kinshasa, RD Congo, Africa) during six months, from December 1st, 2012 till May 31th, 2013.

These two hospitals were chosen because of the existence of a Rheumatology unit. In the DR Congo there are no other rheumatology units and in total 5 rheumatologists are working in Kinshasa. Problems in the organization of care as well as the lack of a health insurance system do not allow patients with rheumatic complaints good accessibility to health care.

All the patients visiting the outpatients clinics of these hospitals for rheumatic complaints during the study period were included. A complete clinical examination by the rheumatologist was performed. Details of joint symptoms, back pain and stiffness, personal and family histories of arthritis, skin lesions, symptoms of acute anterior uveitis, enthesitis, dactylitis, Crohn's disease/colitis, diarrhea, urethritis, good response to non-steroidal anti-inflammatory drugs (NSAIDs) and a positive family history of SpA were recorded. The diagnosis of SpA was according to Amor and ESSG. When the criteria were not fulfilled, the rheumatologist could still make the diagnosis according to his clinical experience. According to the 2009 criteria of the ASAS, ax-SpA is categorized into nr-axSpA and AS, in which the major distinguishing feature is the presence or absence of radiographic sacroiliitis (14, 15). PsA diagnosis was according to the CASPAR classification (16). All patients with buttock pain and/or low back pain underwent image evaluation of the pelvis in anterior-posterior view by conventional X-rays. Sacroiliac joint radiographic lesions were scored with modified New York criteria. Others joints X-rays were performed when additional manifestations were presents (peripheral arthritis, enthesitis, and dactylitis). Patients with axSpA were also asked to complete the BASDAI and BASFI

(17). All patients were assisted by rheumatologist to complete the two questionnaires. For the patients who had a difficulty to understand the French language, the rheumatologist had proceeded to a translation in Lingala to explain different questions contained. Blood tests including erythrocyte sedimentation rate (ESR) and the serum CRP were also performed in all patients. HLA-B27 typing was not realized.

Qualitative data are described as n (%) and quantitative data as mean (SD) or median (quartile1_quartile3) as appropriate. Chi-square test was used to compare the comparison of the proportions. A student-t test was used to compare the averages. The p-value was fixed to 0.05. The study was conducted in accordance with the National Ethics Committee (ESP/CE/030/13).

Results

During the study period, 984 patients visited one of the Rheumatology units for rheumatic complaints. The diagnosis of SpA was made in 105 patients (10.7%). The frequencies for the retrospective subtypes were 4.98% for nr-axSpA, 4.27% for ReA, 1.02% for AS. One patient was seen with PsA, SAPHO syndrome or IBD associated arthritis. Sixty two patients (59%) were male with a male/female sex ratio of 1.4. The mean age of the patients was 44.7±13.5 years; their median disease duration was 3.6 years (range: 0.3 - 15 years). Their average age at the onset of symptom was 41.3±12.4 years. Table 1 reports the different types of SpA encountered. Inflammatory back pain (86.2%) and buttock pain (72.4%) were the most frequent symptoms seen in axSpA while asymmetrical oligoarthritis (80.8%) and plantar talalgias (66.0%) as the most frequently encountered features in peripheral SpA. Table 2 shows the demographic, clinical data and clinical assessment scores of patients with axSpA. Fifty nine patients (56.2%) presented with axSpA and all of them had standard radiographs of sacroiliac joints. Ten patients (6 males and 4 females) showed radiographic sacroiliitis as defined by modified New York criteria and thus classified as AS while 49 patients (27 males) with axSpA (83.1%) had an absence of radiographic sacroiliitis so defining nr-axSpA. Table 2 report demographic and clinical characteristics of patients with axSpA. Patients with AS complained of chronic low back pain (CLBP) for 8.4±3.2 years compared with 4.7±3.3 years for patients with nr-axSpA ($p<0.01$). All patients with axSpA had inflammatory back pain according to ASAS criteria. One patient presented a dorsolumbar pain. The mean distance C7-wall was 4.5±1.6 cm with extremes of 3 and 8 cm. The mean distance between the nape and the wall was 19±7.7 cm with extremes of 12 and 30 with a mean Schobër index of 10+4.2cm (SD 3.2cm). Six patients had radiographic sacroiliitis at stage 2 bilateral and 4 patients had radiographic sacroiliitis at stage 3 according to the modified criteria of New York. Other radiographic findings were in particular signs of iliac and ischio-pubic enthesitis in 5 cases. Syndesmophytes were present among 5 patients while no hip joint involvement was found in the standard radiographs. Elevated CRP and ESR values were found in 75.5% and 36.7%

of patients with nr-axSpA respectively 80.0% and 40.0% of patients with AS had an elevated CRP and ESR, respectively. In the 42 ReA patients (26 males and 17 females), 21 had urogenital manifestations, 14 had enteropathic manifestations and 4 patients had a classical Reiter's syndrome with articular, ocular and urogenital manifestations. Any idea about the bacteria was found in this study. The only case of PsA was found in a 32 year-old patient developing psoriasis 3 years earlier than the onset of articular features with asymmetrical oligoarthritis in the upper limb and typically in the distal interphalangeal joints. Altogether, extra-articular manifestations encountered were uveitis (12.4%), enterocolopathy (0.95%), pustulosis (0.95%) and psoriatic lesions (0.95%). No family history of SpA was found.

Table 1. Different subtypes of SpA in UHK and PGHK in Kinshasa

Subtypes of SpA	***N* (Rf)**	**Sex distribution**				**Mean age (years)±SD**
		M	**F**	**Ratio**	**P**	
Nr-axSpA	49 (46.7)	27	22	1:0.8	0.23	40.5±7.5
ReA	42 (40.0)	20	22	1:1.1	0.47	40.2±13.1
AS	10 (9.5)	6	4	1:0.7	0.45	46.2±4.7
PsA	1 (0.95)	0	1			32
SAPHO Syndrome	1 (0.95)	1	0			35
Enteropathic arthritis	1 (0.95)	0	1			25
Juvenile SpA	1 (0.95)	1	0			13

N Total number of patients with SpA, *M* men, *W* women, *Rf* relative frequency to total number of patients with SpA, *nr-axSpA* non-radiographical axial spondyloarthritis, *ReA* reactive arthritis, *AS* ankylosing spondylitis, *PsA* psoriatic arthritis, *SAPHO syndrome* synovitis acne pustulosis hyperostosis osteitis syndrome.

Table 2. Demographic and clinical features of patients with axial Spondyloarthritis.

	axSpA (total group, n=59)	nr-axSpA (n= 49)	AS (n= 10)	P
Age, mean ± SD years	45.6± 6.1	41.5±7.5	48.2± 4.7	0.03
Age of onset± SD years	38±4.5	37.2±5.6	40.1±6.3	0.27
Male sex	33 (55.9)	27 (55.1)	6 (60.0)	0.45
Symptom duration > 5years	38 (64.4)	18 (36.7)	9 (90.0)	0.02
Clinical features				
Peripheral arthritis	18 (30.5)	16 (32.7)	2 (20.0)	0.23
Enthesitis	13 (22.4)	10 (20.4)	3 (30.0)	0.43
Uveitis	9 (15.5)	6 (12.2)	3 (30.0)	0.22
Psoriasis	1 (1.7)	1 (1.9)	0 (0.0)	
IBD	1 (1.7)	1 (1.9)	0 (0.0)	
BASDAI	42.7± 9.2	39±11.4	44±15.5	0.42
BASFI	46.4± 12.9	44.5± 13.8	48.2± 10.2	0.53
ESR (mm/h) median, range	37 (7-110)	36 (7-68)	41 (13-110)	0.40
CRP (mg/L) median, range	22(4-48)	20 (6-48)	26 (6-48)	0.26

axSpA, axial spondyloarthritis, *nr-axSpA* non-radiographical axial spondyloarthritis, *AS* ankylosing spondylitis, *IBD* inflammatory bowel disease.

Discussion

The prevalence of SpA was 10.7% among rheumatic patients during the 6-month period of the current study and is higher than that found by Malemba and al. (7.5%) based on an extensive review of patients medical records seen by rheumatologists at the UHK. In this hospital-based study, diagnostic criteria applied by rheumatologist were used to improve clinical diagnosis while the application of the criteria of Amor and ESSG in medical records might lead to underdiagnosis. Moreover, in our environment HLA typing is not feasible and because of the low frequency of HLA B27 also not very well performing. Because of all this, ESSG and Amor criteria would need specific validation studies in our region. We observed 105 cases of SpA and a male/female sex ratio of 1.4. More men were affected in the total as confirmed in most of the literature reported from Africa and western countries (18-22). The mean age and the age at the onset of symptom were higher than in the series reported in the western countries, but in agreement with the literature reported from the

sub-Saharan region (4, 18-22). A completely different environment (differences in sanitary equipments, differences in infections occurring in this populations) on top of a different genetic background might be responsible for a different disease presentation and perhaps as a consequence also later diagnosis (7). One might overlook specific clinical presentations and as already mentioned classical classification criteria are not validated in this region. It is also necessary to underline the relatively long delay between the onset of symptom and the consultation as found by several African authors, explained mainly by the poverty of population and problems regarding health care in this part of the world (21). The high frequency of endemic infectious diseases in tropical areas and the precariousness of community and individual measures of hygiene would explain the high frequency of ReA. Despite occurring frequently, ReA in our region is expected to present with milder clinical features probably because of a protective role played by the local genetic factors (7, 8). Further genetic research could be interesting in this field. In this study we observed 10 cases of AS (1.02%). This scarcity seems to be related to the low frequency of HLA B27 gene in this population (23). Less male predominance has been observed among Congolese patients with SpA, AS and nr-axSpA compared to Caucasians (3). However different demographical and methodological characteristics could also contribute to the explanations of gender differences observed. The proportion of females could be underestimated because most of patients with pelvic inflammatory disease would be seen in Gynecology departments in our country where full rheumatologic evaluations and sacroiliac radiographs are not systematically performed. Patients with AS had a mean age of 48.2 years (SD 4.7) with the age of onset typically older as reported in other sub Saharan literature and with no family history of SpA and also a relative rarity of extra-articular features, notably uveitis also in accordance with data of the literature of SpA in sub-Saharan Africa (4,6,20-22).

Pertinent differences between AS and nr-axSpA (83.1% of axSpA) in this study included significantly longer disease duration and mean age at consultation for AS ($p<0.05$). Apart from the fact of AS developing after an initial period of disease with negative radiographical findings, this longer disease duration before consultation can also be explained by the many problems concerning organization of health care, the poverty of the Congolese population having no access to treatment, as well as by cultural specificities with difficulties in understanding the concept of chronicity of a disease (24). No significant difference was observed regarding extra articular features, parameters of disease activity and function as well as inflammatory markers including BASDAI, BASFI, ESR and CRP between these two groups. This is of course difficult to judge in a cross-sectional study of different disease entities when AS might be just the “natural evolution” of nr-axSpA (25-27). Only one case of PsA was reported in this study in a woman of 32 years old with HIV negativity. The skin lesions antedated the joint symptoms for three years, including peripheral joint involvement and sacroiliitis. This scarcity of psoriasis and PsA is in accordance to sub Saharan literature reports (3, 4, 20-22). Further studies

must be performed both in Rheumatology and Dermatology to identify case ascertainment of PsA in this spectrum in Congolese population.

Conclusion

SpA is not rare in outpatients attending Rheumatology units in DR Congo. A population-based study would improve the understanding of this disease spectrum in central Africa. Such a study will need to take in to account the differential infectious background, problems related to the health care system and poverty of the population and differential genetics in this environment. Classification criteria validated in the western world will not necessarily perform the same in our region.

Author affiliations

1 Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Kinshasa, DR Congo

2 University Hospitals Leuven, Division of Rheumatology, 3000 Leuven, Belgium

3 KU Leuven, Department of Development and Regeneration, Skeletal Biology and Engineering Research Center, University Hospitals Leuven, Division of Rheumatology, 3000 Leuven, Belgium

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Contributors

PL wrote protocol, recruited and enrolled participants, collected data, and drafted the report. JJM analysed and interpreted the data. JMM served as medical, participated in the design and helped to draft the manuscript. KDV and RW edited the final version of the manuscript. PL had full responsibility for the integrity of the data and the accuracy of the data analysis.

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Spondyloarthritis in the Democratic Republic of Congo: a prospective hospital-based study

Authors

1. **Pierrot Lebughe**
   Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Kinshasa, DR Congo. lebughe7@gmail.com
2. **Kurt de Vlam**
   University Hospitals Leuven, Division of Rheumatology, KU Leuven, Department of Development and Regeneration, Skeletal Biology and Engineering Research Center Herestraat 49, box 7003, 3000 Leuven, Belgium. kurt.devlam@uzleuven.be
3. **René Westhovens**
   KU Leuven, Department of Development and Regeneration, Skeletal Biology and Engineering Research Center, University Hospitals Leuven, Division of Rheumatology Herestraat 49, box 7003, 3000 Leuven, Belgium. rene.westhovens@uzleuven.be.
4. **Jean-Marie Mbuyi-Muamba**
   Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Kinshasa, DR Congo
   E-mail: mbuyi_muamba@yahoo.fr
5. **Jean-Jacques Malemba**
   Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Kinshasa, DR Congo
   E-mail: jeje_malemba2003@hotmail.com

Corresponding author:
Pierrot Lebughe
Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, PO Box 123, Kinshasa XI, DR Congo
lebughe7@gmail.com
Phone: +243 81 025 11 91

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Abstract

Objectives: To determine the spectrum of SpA in outpatients with rheumatic complaints attending two rheumatology practices in the Democratic Republic of Congo.

Design: A descriptive prospective multicenter outpatient study.

Setting: The present study analyzed 6 months data (from December 1st, 2012 till May 31st, 2013).

Participants: 984 consecutive outpatients were studied.

Interventions: none

***Primary and secondary outcome measures*:** A clinical diagnosis of SpA was made and several classification criteria were applied afterwards. Sacroiliac joint radiographic lesions were scored with the modified New York criteria. BASDAI and BASFI were evaluated in axial SpA. The primary end point was the prevalence of SpA and the secondary endpoints were the spectrum of SpA and its subtypes.

Results: One hundred and five patients (10.7%) were diagnosed among 984 consecutive outpatients with a sex ratio (male to female) of 1.4. The average age at disease onset was 41.3±12.4 years. Non-radiographical axial spondyloarthritis was the most frequent subtype (5.0%) followed by reactive arthritis (4.3%). Other subtypes were: ankylosing spondylitis (1.0%), psoriatic arthritis (0.1%), SAPHO syndrome (0.1%) and IBD associated arthritis (0.1%). Mean BASDAI and BASFI in axial SpA were 42.7/100 and 46.4/100 respectively. Peripheral enthesitis was found in 43% of SpA patients and uveitis (10.4%) was the most frequent extra-articular manifestation. We did not detect any family history. Median erythrocyte sedimentation rate and C reactive protein were 37(range: 7-110) mm/h and 22 (range: 4-48) mg/l respectively.

Conclusions: This hospital-based study suggests a substantial occurrence of some subtypes of SpA in central Africa. A population-based study is needed.

Keywords: Spondyloarthritis. Democratic Republic of Congo.

Strengths and limitations of this study

- To the best of our knowledge, this is the first more detailed study describing the spectrum of Spondyloarthritis in the Democratic Republic of Congo.
- In this hospital-based study, clinical diagnosis was followed by diagnostic criteria applied by rheumatologists strengthening the results, while the application of classification in medical records might have led to misdiagnosis.
- HLA typing and MRI were not performed due to lack of availability and economic constraints. On the other hand applying classical ASAS criteria to an African population would perhaps not be accurate and specific validation is needed in our population.
- Relationships with sexually transmitted and other infections are lacking in our study and future work needs to draw attention to this important issue.
- A population-based study will be needed to accurately evaluate the phenotype and genotype of Spondyloarthritis in central Africa.

Introduction

SpA is a heterogeneous group of mostly chronic interrelated inflammatory rheumatic diseases that share a common genetic predisposition and specific clinical characteristics such as spinal inflammation, asymmetric peripheral arthritis, dactylitis and enthesitis (1) but also common extra-articular features as uveitis, psoriasis and inflammatory bowel disease.

Based on the "Assessment of SpondyloArthritis International Society" (ASAS) classification criteria, SpA can be divided into two subsets: axial SpA (axSpA) including ankylosing spondylitis (AS) and non-radiographical axial spondyloarthritis (nr-axSpA) and also peripheral SpA (pSpA), including reactive arthritis (ReA), psoriatic arthritis (PsA), enteropathic arthritis and juvenile SpA (2).

The spectrum of SpA in sub-Saharan Africa remains poorly defined. In African black populations, SpA is considered to be extremely rare explained in part by the low prevalence of HLA-B27 (3-6). A completely different environment on top of a different genetic background might also be responsible for the rarity as well for a different disease presentation (7-11). Few studies reported on the epidemiological, clinical, radiological features of SpA in sub-Saharan populations (3-6, 12). These studies are mostly older, biased because based on hospital cohorts and suggest differential epidemiological and clinical aspects of SpA in our region. In DR Congo, data on SpA are also scarce. A first hospital-based study reported a prevalence of 7.5% among patients attending the University Hospital of Kinshasa (UHK) for rheumatic complaints (13).The purpose of this present study was to report in a more detailed way the spectrum of SpA and its subtypes in patients attending two rheumatology units in DR Congo.

Methods

This was a prospective study conducted in the department of internal medicine of the UHK and the Provincial General Hospital of Kinshasa (PGHK) (Kinshasa, DR Congo, Africa) for six months, from December 1st, 2012 till May 31st, 2013.

These two hospitals were chosen because of the existence of a Rheumatology unit. In the DR Congo there are no other rheumatology units and in total 5 rheumatologists are working in Kinshasa. Problems in the organization of care as well as the lack of a health insurance system do not allow patients with rheumatic complaints good accessibility to health care.

All the patients visiting the outpatients' clinics of these hospitals for rheumatic complaints during the study period were recruited consecutively. A complete clinical examination by the rheumatologist was performed. Details of joint symptoms, back pain and stiffness, personal and family histories of arthritis, skin lesions, symptoms of acute anterior uveitis, enthesitis, dactylitis, Crohn's disease/colitis, diarrhea, urethritis, good response to non-steroidal anti-inflammatory drugs (NSAIDs)

and a positive family history of SpA were recorded. The diagnosis of SpA was according to Amor and ESSG. When the criteria were not fulfilled, the rheumatologist could still make the diagnosis according to his clinical experience. AxSpA and pSpA were diagnosed when predominant involvement was respectively in the axial skeleton and the peripheral joints, consisting of peripheral arthritis, enthesitis and dactylitis. AxSpA was categorized into AS and nr-axSpA according to the presence/absence of radiographic sacroiliitis (14, 15). The diagnosis of AS has been based upon the modified New York criteria. PsA diagnosis was according to the CASPAR classification (16). All patients with buttock pain and/or low back pain underwent image evaluation of the pelvis in anterior-posterior view by conventional X-rays. Others joint X-rays were performed when additional manifestations were present (peripheral arthritis, enthesitis, and dactylitis). Patients with axSpA were also asked to complete the BASDAI and BASFI (17). All patients were assisted by rheumatologists to complete the two questionnaires. For the patients who had difficulty to understand the French language, the rheumatologist proceeded to a translation in Lingala to explain different questions contained. Blood tests including erythrocyte sedimentation rate (ESR) and the serum CRP were also performed in all patients. HLA-B27 typing was not realized.

Qualitative data are described as n (%) and quantitative data as mean (SD) or median (quartile1_quartile3) as appropriate. Chi-square test was used to compare the comparison of the proportions. A student-t test was used to compare the averages. The p-value was fixed to 0.05. The study was conducted in accordance with the National Ethics Committee (ESP/CE/030/13).

Results

During the study period, 984 patients visited one of the Rheumatology units for rheumatic complaints. The diagnosis of SpA was made in 105 patients (10.7%). 78 Patients fulfilled the Amor or ESSG criteria and 27 patients were diagnosed according to clinical grounds only based on the rheumatologist experience. The frequencies for the retrospective subtypes were 5.0% for nr-axSpA, 4.3% for ReA, 1.0% for AS. One patient was seen with PsA, SAPHO syndrome or IBD associated arthritis. Sixty-two patients (59%) were male with a male/female sex ratio of 1.4. The mean age of the patients was 44.7±13.5 years; their median disease duration was 3.6 years (range: 0.3 - 15 years). Their average age at the onset of symptom was 41.3±12.4 years. Table 1 reports the different types of SpA encountered. Inflammatory back pain (86.2%) and buttock pain (72.4%) were the most frequent symptoms seen in axSpA while asymmetrical oligoarthritis (80.8%) and plantar talalgias (66.0%) as the most frequently encountered features in pSpA. Table 2 shows the demographic, clinical data and clinical assessment scores of patients with axSpA. Fifty-nine patients (56.2%) presented with axSpA and all of them had standard radiographs of sacroiliac joints. Ten patients (6 males and 4 females) showed radiographic sacroiliitis as defined by modified New York criteria and

thus classified as AS while 49 patients (27 males) with axSpA (83.1%) had an absence of radiographic sacroiliitis so defining nr-axSpA. Table 2 report demographic and clinical characteristics of patients with axSpA. Patients with AS complained of chronic low back pain (CLBP) for 8.4±3.2 years compared with 4.7±3.3 years for patients with nr-axSpA ($p<0.01$). All patients with axSpA had inflammatory back pain according to ASAS criteria. One patient presented a dorsolumbar pain. The mean distance C7-wall was 4.5±1.6 cm with extremes of 3 and 8 cm. The mean distance between the nape and the wall was 19±7.7 cm with extremes of 12 and 30 with a mean Schöber index of 10+4.2cm (SD 3.2cm). Six patients had radiographic sacroiliitis at stage 2 bilateral and 4 patients had radiographic sacroiliitis at stage 3 according to the modified criteria of New York. Other radiographic findings were in particular signs of iliac and ischio-pubic enthesitis in 5 cases. Syndesmophytes were present among 5 patients while no hip joint involvement was found in the standard radiographs. Elevated CRP and ESR values were found in 75.5% and 36.7% of patients with nr-axSpA respectively 80.0% and 40.0% of patients with AS had an elevated CRP and ESR, respectively. In the 42 ReA patients (20 males and 22 females), 21 had urogenital manifestations, 17 had enteropathic manifestations and 4 patients had a classical Reiter's syndrome with articular, ocular and urogenital manifestations. Any idea about the bacteria was found in this study. The only case of PsA was found in a 32 year-old patient developing psoriasis 3 years earlier than the onset of articular features with asymmetrical oligoarthritis in the upper limb and typically in the distal interphalangeal joints. Altogether, extra-articular manifestations encountered were uveitis (12.4%), enterocolopathy (1.0%), pustulosis (1.0%), and psoriatic lesions (1.0%). No family history of SpA was found.

Table 1. Different subtypes of SpA in UHK and PGHK in Kinshasa

Subtypes of SpA	***N* (Rf)**	**Sex distribution**				**Mean age (years)±SD**
		M	**F**	**Ratio**	**P**	
Nr-axSpA	49 (46.7)	27	22	1:0.8	0.23	40.5±7.5
ReA	42 (40.0)	20	22	1:1.1	0.47	40.2±13.1
AS	10 (9.5)	6	4	1:0.7	0.45	46.2±4.7
PsA	1 (1.0)	0	1			32
SAPHO Syndrome	1 (1.0)	1	0			35
Enteropathic arthritis	1 (1.0)	0	1			25
Juvenile SpA	1 (1.0)	1	0			13

N Total number of patients with SpA, *M* men, *W* women, *Rf* relative frequency to total number of patients with SpA, *nr-axSpA* non-radiographical axial spondyloarthritis, *ReA* reactive arthritis, *AS* ankylosing spondylitis, *PsA* psoriatic arthritis, *SAPHO syndrome* synovitis acne pustulosis hyperostosis osteitis syndrome.

Table 2. Demographic and clinical features of patients with axial Spondyloarthritis.

	axSpA (total group, n=59)	nr-axSpA (n= 49)	AS (n= 10)	P
Age, mean ± SD years	45.6± 6.1	41.5±7.5	48.2± 4.7	0.03
Age of onset± SD years	38±4.5	37.2±5.6	40.1±6.3	0.27
Male sex	33 (55.9)	27 (55.1)	6 (60.0)	0.45
Symptom duration > 5years	38 (64.4)	18 (36.7)	9 (90.0)	0.02
Clinical features				
Peripheral arthritis	18 (30.5)	16 (32.7)	2 (20.0)	0.23
Enthesitis	13 (22.4)	10 (20.4)	3 (30.0)	0.43
Uveitis	9 (15.5)	6 (12.2)	3 (30.0)	0.22
Psoriasis	1 (1.7)	1 (1.9)	0 (0.0)	
IBD	1 (1.7)	1 (1.9)	0 (0.0)	
BASDAI	42.7± 9.2	39±11.4	44±15.5	0.42
BASFI	46.4± 12.9	44.5±13.8	48.2± 10.2	0.53
ESR (mm/h) median, range	37 (7-110)	36 (7-68)	41 (13-110)	0.40
CRP (mg/L) median, range	22(4-48)	20 (6-48)	26 (6-48)	0.26

axSpA, axial spondyloarthritis, *nr-axSpA* non-radiographical axial spondyloarthritis, *AS* ankylosing spondylitis, *IBD* inflammatory bowel disease.

Discussion

The prevalence of SpA was 10.7% among rheumatic patients during the 6-month period of the current study and is higher than that found by Malemba and al. (7.5%) based on an extensive review of patients medical records seen by rheumatologists at the UHK. In this hospital-based study, diagnostic criteria applied by rheumatologists were used to improve their clinical diagnosis while just application of the criteria of Amor and ESSG in medical records might lead to misdiagnosis. Moreover, in our environment HLA typing is not feasible and because of the low frequency of HLA B27 also not very well performing. We would state that ESSG and Amor criteria would also need specific validation studies in our region. The issue of HLA B27 mentioned above and the lack of availability of MRI in our regions as well the economic constraints, make the application of the ASAS criteria that heavily rely on this items not feasible as is probably also the case in many other parts of the world. We observed 105 cases of SpA and a male/female sex ratio of 1.4. More men were

affected in the total as confirmed in most of the literature reported from Africa and western countries (18-22). The mean age and the age at the onset of symptom were higher than in the series reported in the western countries, but in agreement with the literature reported from the sub-Saharan region (4, 18-22). A completely different environment (differences in sanitary equipments, differences in infections occurring in these populations) on top of a different genetic background might be responsible for a different disease presentation and perhaps as a consequence also later diagnosis (7). One might overlook specific clinical presentations and as already mentioned classical classification criteria are not validated in this region. It is also necessary to underline the relatively long delay between the onset of symptom and the consultation as found by several African authors, explained mainly by the poverty of population and problems regarding health care in this part of the world (21). The high frequency of endemic infectious diseases in tropical areas and the precariousness of community and individual measures of hygiene would explain the high frequency of ReA. Despite occurring frequently, ReA in our region is expected to present with milder clinical features probably because of a protective role played by the local genetic factors (7, 8). Further genetic research could be interesting in this field. In this study we observed 10 cases of AS (1.0%). This scarcity seems to be related to the low frequency of HLA B27 gene in this population (23). Less male predominance has been observed among Congolese patients with SpA, AS and nr-axSpA compared to Caucasians (3). However different demographical and methodological characteristics could also contribute to the explanations of gender differences observed. The proportion of females could be underestimated because most patients with pelvic inflammatory disease would be seen in Gynecology departments in our country where full rheumatologic evaluations and sacroiliac radiographs are not systematically performed. Patients with AS had a mean age of 48.2 years (SD 4.7) with the age of onset typically older as reported in other sub-Saharan literature and with no family history of SpA and also a relative rarity of extra-articular features, notably uveitis also in accordance with data of the literature of SpA in sub-Saharan Africa (4,6,20-22).

Pertinent differences between AS and nr-axSpA (83.1% of axSpA) in this study included significantly longer disease duration and mean age at consultation for AS ($p<0.05$). Apart from the fact of AS developing after an initial period of disease with negative radiographical findings, this longer disease duration before consultation can also be explained by the many problems concerning organization of health care, the poverty of the Congolese population having no access to treatment, as well as by cultural specificities with difficulties in understanding the concept of chronicity of a disease (24). No significant difference was observed regarding extra articular features, parameters of disease activity and function as well as inflammatory markers including BASDAI, BASFI, ESR and CRP between these two groups. This is of course difficult to judge in a cross-sectional study of different disease entities when AS might be just the “natural evolution” of nr-axSpA (25-27). Only one case of PsA was

reported in this study in a woman of 32 years' old with HIV negativity. The skin lesions antedated the joint symptoms for three years, including peripheral joint involvement and sacroiliitis. This scarcity of psoriasis and PsA is in accordance with sub-Saharan literature reports (3, 4, 20-22). Further studies must be performed both in Rheumatology and Dermatology to identify case ascertainment of PsA in this spectrum in Congolese population.

Conclusion

SpA is not rare in outpatients attending Rheumatology units in DR Congo. A population-based study would improve the understanding of this disease spectrum in central Africa. Such a study will need to take into account the differential infectious background, problems related to the health care system and poverty of the population and differential genetics in this environment. Classification criteria validated in the western world will not necessarily perform the same in our region. Also measurements as BASDAI and BASFI should be critically evaluated and compared to specific norm data.

Authors' affiliations

1 Rheumatology unit, Department of internal medicine, University Hospital of Kinshasa, Kinshasa, DR Congo

2 University Hospitals Leuven, Division of Rheumatology, 3000 Leuven, Belgium

3 KU Leuven, Department of Development and Regeneration, Skeletal Biology and Engineering Research Center, University Hospitals Leuven, Division of Rheumatology, 3000 Leuven, Belgium

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Contributors

PL wrote protocol, recruited and enrolled participants, collected data, and drafted the report. JJM analyzed and interpreted the data. JMM served as experienced rheumatologist, participated in the design and helped to draft the manuscript. KDV and RW helped interpreting data, writing and edited the final version of the manuscript. PL had full responsibility for the integrity of the data and the accuracy of the data analysis.

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