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HLA-B27 antigen in spondyloarthritis in sub-Saharan Africa: the example of Senegal.

**Kaba Condé¹, Hugues Ghislain Atakla², Mahaman Salissou Garba³, Moustapha Niassé⁴,
Rama Diallo⁴, Coumba Diouf⁴, Saïdou Diallo⁴.**

¹Rheumatology Department, Ignace Deen University Hospital Center, Conakry, Guinea

²Neurology Department, Ignace Deen University Hospital Center, Conakry, Guinea

³Rheumatology Department, Maradi National Hospital, Niamey, Niger

⁴Rheumatology Department, Aristide Le Dantec University Hospital Centre, Dakar, Senegal

*Corresponding author: Kaba CONDE (Rheumatology/Neurology Ignace Deen National Hospital, Conakry, Guinea)

Email: condekba95@gmail.com

Tel: +224629879631

ABSTRACT

Objective. The aim of this study is to evaluate the presence of the HLA-B27 antigen in SpA in Senegalese hospitals.

Patients and method: This is a retrospective study carried out in the rheumatology department of the CHU Le Dantec in Dakar between January 2012 and January 2017. The diagnosis of spondyloarthritis was retained, in accordance with the criteria of Assessment of Spondyloarthritis

and New York modified. For each patient, the following data were collected: age, sex, time to diagnosis, type of SpA, HLA B27 phenotyping.

Results: We collected 209 observations of spondyloarthritis with a mean age of 46 years (extremes 20 and 66 years), 137 (65.6%) were women. The mean time to diagnosis was 5 years. Axial involvement was lumbar for 180 cases (86%). HLA-B 27 phenotyping was performed in all patients, 108 patients were HLA-B 27 positive (51.7%). These patients were slightly younger with a mean age of 38 years (extremes 20 and 55 years). Among the 108 HLA-B27 positive patients, 53/109 (48.6%) were from the Peulh (Fula) ethnic group. An AS was found in 88/109 cases (80.7%) and all patients with uveitis were HLA-B27 positive.

Conclusion: Spondyloarthritis is growing in Senegalese hospitals. They mainly affect women and the HLA-27 antigen is present in half of the cases.

Keywords: Spondyloarthritis, HLA-B27, Senegal

RÉSUMÉ

Objectif. Le but de cette étude est d'évaluer la présence de l'antigène HLA-B27 dans les SpA en milieu hospitalier sénégalais.

Patients et méthode : Il s'agit d'une étude rétrospective réalisée dans le service de rhumatologie du CHU Le Dantec de Dakar entre janvier 2012 et janvier 2017. Le diagnostic de spondyloarthrite était retenu, en accord avec les critères d'Assessment of Spondyloarthritis et de New York modifié. Pour chaque patient, les données suivantes ont été collectées : âge, sexe, le délai au diagnostic, le type de SpA, le phénotypage HLA B27.

Résultats : nous avons colligé 209 observations de spondyloarthrites d'âge moyen de 46 ans (extrêmes 20 et 66 ans), 137 (65,6%) étaient des femmes. Le délai moyen au diagnostic était de 5 ans. L'atteinte axiale était lombaire pour 180 cas (86 %). Le phénotypage HLA- B 27 était réalisé chez tous patients, 108 patients étaient HLA B-27 positifs (51,7%). Ces patients étaient un peu plus jeunes avec un âge moyen de 38 ans (extrêmes 20 et 55 ans). Parmi les 108 patients HLA-B27 positifs, 53/109 (48,6%) étaient retrouvée dans l'ethnie peulh (fula). Une SA était retrouvée

dans 88/109 cas (80,7 %) et tous les patients avec uvéites étaient HLA-B27 positifs. **Conclusion :** Les spondyloarthrites sont en croissance en milieu hospitalier Sénégalais. Elles touchent surtout les femmes et l'antigène HLA-27 est présent dans la moitié des cas.

Mots clés : Spondyloarthrites, HLA-B27, Sénégal, SpA

INTRODUCTION

Spondyloarthritis (SpA) is a group of chronic inflammatory rheumatic diseases with a common axial and/or peripheral topography, a preferred target (entheses), a tendency to ankylosis, heredity attested by strong family aggregation and association with the HLA-B27 antigen (human leukocyte antigen B27), absence of autoantibodies and common extra-articular manifestations [1]. They include: Ankylosing Spondylitis (AS), Psoriatic Rheumatism (PsR), Reactive Arthritis (RA), forms associated with inflammatory enterocolopathies (Crohn's disease and ulcerative colitis), SAPHO (Synovitis- Acne-Pustulose- Hyperostosis-Osteitis) and undifferentiated forms [1, 2]. They are classically considered rare in sub-Saharan Africa [1, 2, 3], where the majority of the population is considered HLA-B27 negative [4, 5]. In Black Africa, the estimated prevalence of SpA is less than 0.1% [6]. The main studies in sub-Saharan Africa have focused on ankylosing spondylitis, psoriatic arthritis and HIV-associated SpA [7, 8, 9, 10, 10, 11, 12, 13]. Thus, this series allows us to evaluate the presence of the HLA-B27 antigen in SpA in Senegalese hospitals.

PATIENTS AND METHOD

This is a retrospective study carried out in the rheumatology department of the CHU Le Dantec in Dakar between January 2012 and January 2017. The diagnosis of SpA was retained, in accordance with ASAS (Assessment of Spondyloarthritis) and modified New York criteria. For each patient, the following data were collected: demographic (age, sex, and ethnicity), clinical (diagnostic delay, axial and peripheral involvement, SpA subtypes), extra-articular manifestations (uveitis), biological (C-reactive protein, HLA B27 phenotyping), radiographic sacroilitis. Treatment: Non-steroidal anti-inflammatory drugs (NSAIDs), DMARDs (Disease-Modifying Antirheumatic Drugs), anti TNF alpha, steroid infiltrations, physiotherapy. Disease activity was assessed according to the Ankylosing Spondylitis Functional Index (BASFI) bath, Ankylosing

Spondylitis Disease Activity Index (BASDAI) bath and Assessment in Ankylosing Spondylitis-Endorsed Disease Activity Score (ASDAS).

RESULTS

During the study period, we collected 209 (Table 1) observations of spondyloarthritis with a mean age of 46 years (extremes 20 and 66 years), 137 (65.6%) were women. The mean time to diagnosis was 5 years. Axial involvement: was lumbar for 180 cases (86%), cervical for 65 cases (32.5%), or involved the anterior chest wall for 91 cases (43.5%). Ankylosing spondylitis (AS) was diagnosed in 80.9% of cases, reactive arthritis in 5.7% of cases, psoriatic arthritis in 3.8% of cases, IBD in 4.3% of cases, SAPHO in 1.4% of cases, and undifferentiated in 3.8% of cases. Uveitis was present in 33 cases (15.8%). The mean values of SV and CRP were 36 (extremes 4 and 130 mm/hour) and 12 (extremes 0.5 and 96 mg/l) respectively. Sacroilitis was present in 65% of cases. HLA B 27 phenotyping was performed in all patients, 108 patients were HLA B 27 positive (51.7%). These patients were slightly younger with a mean age of 38 years (extremes 20 and 55 years). Among the 108 HLA B27 positive patients, 53/109 (48.6%) were from the Peulh (Fula) ethnic group. An AS was found in 88/109 cases (80.7%) and all patients with uveitis were HLA-B27 positive. A total of 94 (44.9%); 83 (39.7%) were treated with methotrexate; 21 (10%) patients were treated with salazopyrin and only 4 (1.9%) received biologic therapy. The mean BASFI and BASDAI were 5.2/10 and 6.08/10, respectively (Table 1).

DISCUSSION

In our study, the HLA-B27 antigen was positive in 108 patients or 50.7% of cases. These patients were slightly younger with an average age of 38 years. Although several studies have supported the theory that spondyloarthritis is rare in sub-Saharan Africa, in part because of the rarity of HLA B 27 [4, 5, 13, 14]. The estimate of the prevalence of SpA in black Africa is less than 1% [6]. In West Africa the situation is different and intriguing. Despite the HLAB27 frequencies of 7.8% in the fula population in The Gambia [6] and 9.7% in Mali [15], SpA is rarely seen at the hospital and community level. In a study carried out in Togo over a period of 27 months, there were only 9 cases of SpA among the 2030 patients [9].

In our study, among the 108 HLA-B27 positive patients, 53/109 (48.6%) were found in the Peulh (fula) ethnic group. However, in-depth studies of the Fula tribe in The Gambia have not found any cases of SpA, despite carrying rates of 6% for HLA-B27 and respectively 32% and 69% for the HLA-B subtypes * 27:03 and HLA-B * 27:05 [13]. Among the patients, HLA-B27 positive, ankylosing spondylitis was diagnosed in 80.7%. In fact, in a review of 25 cases from different regions of Africa (Burkina Fasso, Togo, Zambia), the presence of HLA-B * 14:03 and B * 27: 05 alleles was significantly increased in patients with SA compared to healthy controls (32% versus 0.2%) [16, 17, 18].

Another interesting fact in our study, all the patients with uveitis was HLA-B27. However, several studies have shown a relative absence of extra-articular manifestations, notably uveitis in the African patient [5, 19, 20]. Biological treatment was used only in 4 patients due to difficult access and high cost.

CONCLUSION

Spondyloarthritis is growing in Senegalese hospitals. They mainly affect women and the HLA-27 antigen is present in half of the cases. More studies are needed to better characterize the presence of HLA-B27 in the black African patient.

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Corresponding author:

Condé Kaba (Department of Rheumatology, CHU Ignace Deen, University of Conakry, Guinea).

Email address: condekba95@yahoo.fr

Tables

Table 1. Characteristics of all patients and patients with HLA-B27 positive.

	All HLA+ patients (n 209) (n109)	All HLA+ patients (n 209) (n109)
Sex, woman, n(%)	135(65,7)	67(62)
Mean age at diagnosis (SD ±) (years)	46 ± 8	38 ± 4
Family history of SpA, n (%)	46(22)	26(24)
Mean time from first symptoms to diagnosis	5	5
Inflammatory low back pain, n(%)	180 (86)	90(83,3)
Uveite, n (%)	33 (15,8)	33(30,5)
Mean VS mm/h	36	55
Mean CRP mg / l	12	15
HLA B27, n (%)	108 (51,7)	108(100)
Sacroiliitis, n (%)	136 (65)	60(55)
Average BASDAI score	4,8	5,2
Average BASFI Score	5	6,08
Average ASDAS Score	2,03	2,03
Psoriatic arthritis, n (%)	169 (80,9)	88(81)
Arthrite psoriasique, n (%)	8 (3,8)	5(4,6)
Reactive arthritis, n(%)	12 (5,7)	4(3,7)
MICI, n (%)	9 (4,3)	4(3,7)
SAPHO, n (%)	3 (1,4)	1(0,9)

SpA: Spondyloarthritis; CRP: C Reactive Protein; VS: Sedimentation Rate; HLB-27: B27 Human Leukocyte Antigen; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASFI: Bath Ankylosing Spondylitis Functional Index; ASDAS: Assessment in Ankylosing Spondylitis-Endorsed Disease Activity Score ;

IBD: Chronic Inflammatory Bowel Disease; SAPHO: Synovitis, Acne, Pustulosis, Hyperostosis, Osteitis; n: number.

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