



## Influence of Ethnicity on Ankylosing Spondylitis in Bahia, Brazil

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### ABSTRACT

Ankylosing spondylitis (AS) is a form of spondyloarthritis characterized by sacroiliitis and involvement of the lumbar spine, often associated with positivity for the HLA-B27 gene. This study analyzed the influence of racial factors on the frequency of HLA-B27 and disease duration among AS patients in Bahia, Brazil. Forty-five patients were included, of whom 21 (47%) were Caucasian and 24 (53%) were mixed race or Black. The results showed that Caucasian patients had a significantly shorter average disease duration and a higher positivity rate for HLA-B27 compared to non-Caucasian patients. These findings highlight the importance of racial differences in the clinical manifestation of AS.

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## INTRODUCTION

Ankylosing spondylitis (AS) is a chronic inflammatory disease that predominantly affects the spine and the sacroiliac joints, leading to low back pain, stiffness, and, in advanced cases, vertebral fusion. The association between the presence of the HLA-B27 antigen and the development of AS is well documented, with studies showing that the positivity of this genetic marker varies considerably among populations of different ethnicities. In the United States, the frequency of HLA-B27 ranges from 5% to 12% in the general population, whereas studies conducted in Brazil indicate a variation from 14% to 35% [1,2].

Bahia, a Brazilian state with a diverse population, presents a rich ethnic composition consisting of 19.61% Caucasians, 22.38% Black individuals, and 57.31% mixed-race (pardo) individuals, according to data from the IBGE census [3]. This ethnic diversity provides an ideal context to investigate differences in the manifestation of AS, particularly regarding HLA-B27 positivity and disease duration among racial groups.

The literature has already documented that ethnicity may influence not only the prevalence of autoimmune diseases but also treatment response and disease severity. Previous studies suggest that the presence of HLA-B27 is associated with more aggressive forms of AS, leading to faster disease progression [4]. In addition, socioeconomic and cultural factors may impact access to diagnosis and treatment, further contributing to the disparities observed among ethnic groups [5].

## METHODS

This study included 45 patients diagnosed with ankylosing spondylitis (AS), according to criteria established by the American College of Rheumatology. All patients were followed at the author's private clinic in Salvador, Bahia. Race was defined by self-identification, with participants classifying themselves as Caucasian or non-Caucasian (including Black and mixed-race individuals). Statistical analysis was performed using measures of mean, median, and frequencies. For comparisons between groups, the Mann-Whitney test was used for continuous variables and Fisher's exact test for categorical variables, with a significance level set at  $p < 0.05$ .

Demographic and clinical data were collected through interviews and review of medical records, including information on age, sex, disease duration, HLA-B27 status, and other relevant comorbidities.

All patients provided informed consent and signed a written consent form prior to participation.

## RESULTS

The mean age of the patients was  $44.9 \pm 16.8$  years, with 50% being female. The mean disease duration was  $7.6 \pm 7.1$  years. Regarding racial distribution, 21 (47%) patients were Caucasian and 24 (53%) were non-Caucasian (mixed-race or Black). When comparing the two racial groups, no significant difference was observed in mean age [41 (24–63) vs. 49 (19–71) years,  $p = 0.37$ ]. However, a significant difference in disease duration was noted: Caucasian patients had a shorter mean disease duration [2.3 (1–7) years], whereas non-Caucasian patients had a longer duration [11 (3–20) years,  $p = 0.013$ ].

Additionally, HLA-B27 positivity was significantly higher among Caucasians (71.4%) compared to non-Caucasians (25%,  $p = 0.04$ ).

These findings suggest that most Caucasian patients not only present a milder disease course but also have a genetic predisposition that may contribute to earlier diagnosis and a more effective therapeutic response.

## DISCUSSION

The results of this study indicate that ethnicity plays a significant role in the clinical presentation of ankylosing spondylitis (AS). The higher HLA-B27 positivity observed among Caucasian patients suggests a genetic predisposition that may influence disease severity and duration. Previous studies have shown that the presence of HLA-B27 is associated with more aggressive forms of AS, leading to faster disease progression [4]. For instance, an analysis of patients from different ethnic backgrounds demonstrated that HLA-B27–positive individuals tend to develop axial forms of AS at a younger age compared to those who are HLA-B27–negative [6].

Additionally, the difference in disease duration between groups may reflect social and cultural factors. Patients from different ethnic backgrounds may have unequal access to healthcare, which can influence early diagnosis and treatment of AS. The literature suggests that disease awareness varies across ethnic groups, potentially leading to delays in treatment and, consequently, longer symptom duration among non-Caucasian populations [5]. For example, a study in an Afro-descendant population found that the average delay in AS diagnosis was significantly longer compared to White populations [7].

These disparities may be further exacerbated by factors such as educational level and socioeconomic status, which influence not only access to healthcare systems but also adherence to treatment. Socioeconomic determinants play a crucial role in living and health conditions, impacting quality of life and the ability to manage chronic diseases such as AS.

Moreover, family history and the epidemiology of AS in Bahia may be influenced by social structure and migration patterns, affecting the distribution of the HLA-B27 gene within the population. Future studies should explore how these factors interact and how they can be addressed in clinical practice.

## CONCLUSION

This study demonstrates that Caucasian patients with ankylosing spondylitis (AS) in Bahia have a shorter disease duration and higher HLA-B27 positivity compared to non-Caucasian patients. These findings highlight the importance of considering ethnic factors in the clinical presentation of AS and in therapeutic decision-making. Future research should explore the interaction between genetic, social, and environmental factors in the progression of ankylosing spondylitis, aiming to improve disease management in ethnically diverse populations.

## REFERENCES

1. Khan MA. HLA-B\*27 and Ankylosing Spondylitis: 50 Years of Insights and Discoveries. *Curr Rheumatol Rep*. 2023 Dec;25(12):327-340..
2. Wordsworth BP, Cohen CJ, Davidson C, Vecellio M. Perspectives on the Genetic Associations of Ankylosing Spondylitis. *Front Immunol*. 2021 Mar 5;12:603726. Instituto Brasileiro de Geografia e Estatística (IBGE). "Censo Demográfico 2020". Disponível em: [www.ibge.gov.br](http://www.ibge.gov.br).
3. Voruganti A, Bowness P. New developments in our understanding of ankylosing spondylitis pathogenesis. *Immunology*. 2020 Oct;161(2):94-102. .
4. Skare TL, Bortoluzzo AB, Gonçalves CR, Braga da Silva JA, Ximenes AC, Bértolo MB, Ribeiro SL, Keiserman M, Menin R, Carneiro S, Azevedo VF, Vieira WP, Albuquerque EN, Bianchi WA, Bonfiglioli R, Campanholo C, Carvalho HM, Costa IP, Duarte AP, Gavi MB, Kohem CL, Leite NH, Lima SA, Meirelles ES, Pereira IA, Pinheiro MM, Polito E, Resende GG, Rocha FA, Santiago MB, Sauma Mde F, Sampaio-Barros PD. Ethnic influence in clinical and functional measures of Brazilian patients with spondyloarthritis. *J Rheumatol*. 2012 Jan;39(1):141-7.
5. Lin Z, Xu H, Gu J, Liao Z, Wei Q, Li C. Investigation and analysis on the delayed diagnosis in patients with ankylosing spondylitis in a Chinese population. *Clin Exp Rheumatol*. 2008 Nov-Dec;26(6):1163.

6. Capelusnik D, Zhao SS, Boonen A, Ziade N, Medina CL, Dougados M, Nikiphorou E, Ramiro S. Individual-level and country-level socio-economic factors and health outcomes in spondyloarthritis: analysis of the ASAS-perSpA study. *Rheumatology (Oxford)*. 2022 May 5;61(5):2043-2053.
7. Citera G, Bautista-Molano W, Peláez-Ballestas I, Azevedo VF, Perich RA, Méndez-Rodríguez JA, Cutri MS, Borlenghi CE. Prevalence, demographics, and clinical characteristics of Latin American patients with spondyloarthritis. *Adv Rheumatol*. 2021 Jan 8;61(1):2.