



A Retrospective Study of Hla-B-27 Association in Patients of Spondyloarthropathy with Special Reference to Gender and Ethnic Diversity in a Tertiary Care Hospital in North-East India

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I. BACKGROUND:

Ankylosing Spondylosis (AS) is an inflammatory disorder of unknown cause that primarily affects the axial skeleton; peripheral joints and extraarticular structures are also frequently involved. The disease usually begins in the second or third decade and male-to-female prevalence is between 2:1 and 3:1. The term axial spondyloarthritis is commonly used term for Ankylosing Spondylosis (AS)¹. AS causes pain, stiffness, disability, decreased spinal mobility, and decreased quality of life. AS shows a striking correlation with the histocompatibility antigen HLA-B-27. Human Leukocyte Antigen (HLA) or the Human Major Histocompatibility Complex (MHC) is a 4-megabase (Mb) region on chromosome 6 (6p21.3) that is densely packed with expressed genes. HLA molecules play a key role in the selection and establishment of the antigen specific T-cell repertoire and a major role in the subsequent activation of those T cells during the initiation of an immune response. The molecule HLA-B-27 share a common deep, negatively charged B pocket in the peptide-binding groove and has B27:01-25 subtypes, among which HLA-B27:05 is the predominant subtype². In most ethnic groups, HLA-B27 is present in 80-90% of AS patients¹.

A person's genetic makeup, including HLA B-27, is thought to make up roughly 90% of the disease risk in AS³. It's not surprising then that ethnicity plays a large role in the frequency of AS throughout the world. There have been previous studies investigating AS severity in different ethnic/racial groups – Blacks, Whites and Latinos; analyzing also the association of HLA B-27 with AS in these groups⁴. This study was done to look into the correlation between HLA B-27 association with ethnic groups in north-East India as we could

not access any data to show such association till date from this part of the world.

There is a huge ethnic diversity of the demographic pattern and here is a representation of the ethnic groups in North-East India. (Annexure 1)

II. OBJECTIVES:

To study the prevalence of HLA-B27 positivity among SpA patients and assess any gender and ethnic variation.

III. MATERIALS AND METHODS:

This hospital based retrospective observational study was performed on patients of spondyloarthropathies attending the Rheumatology OPD in a tertiary care hospital over a period of one year. The patients were diagnosed clinically based on the Assessment Of Spondyloarthritis International Society (ASAS) criteria. Patients with backpain not fulfilling ASAS criteria were excluded. The clinical diagnosis was supplemented by radiological and laboratory investigations which were done prior to the study period: Complete blood count, blood urea, serum creatinine, random blood sugar, Liver function tests, serum uric acid, thyroid function test, HLA-B-27 Serotyping (by molecular method), Radiological investigations (X-Rays of involved joints, lumbosacral spine, Chest X-Ray), MRI (SI joint).

IV. RESULTS:

Out of 78 patients, 54 (69.2%) were males and 24 (30.8%) were females. A total of 42 (53.8%) patients were HLA B-27 positive and 36 (46.2%) were negative. Of the 54 males, 33 (61.1%) were positive for HLA B-27 and 21 (38.9%) were negative. Out of 24 females, 9 (37.5%) were positive for HLA B-27 and 15 (62.5%) were negative.

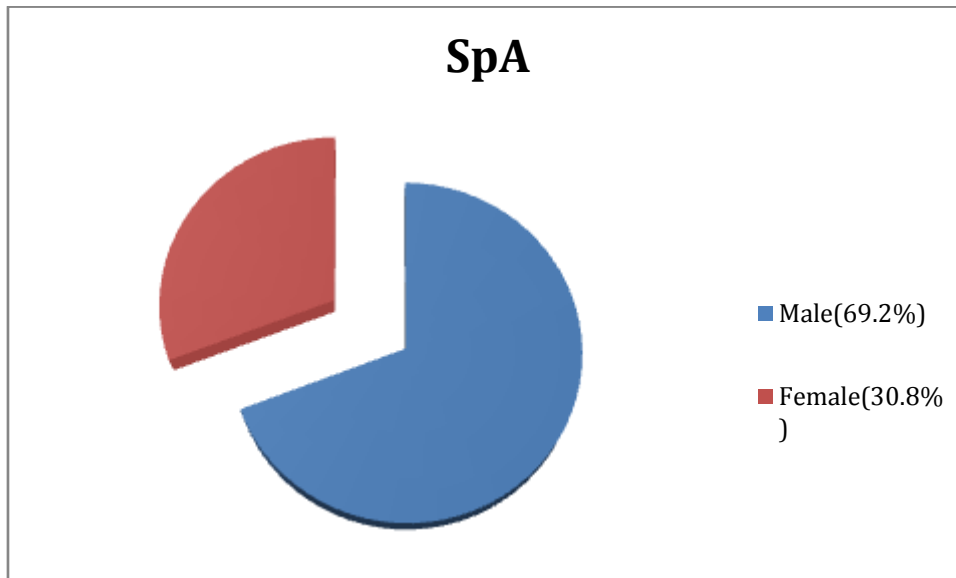


Fig 1 : Gender distribution of SpA

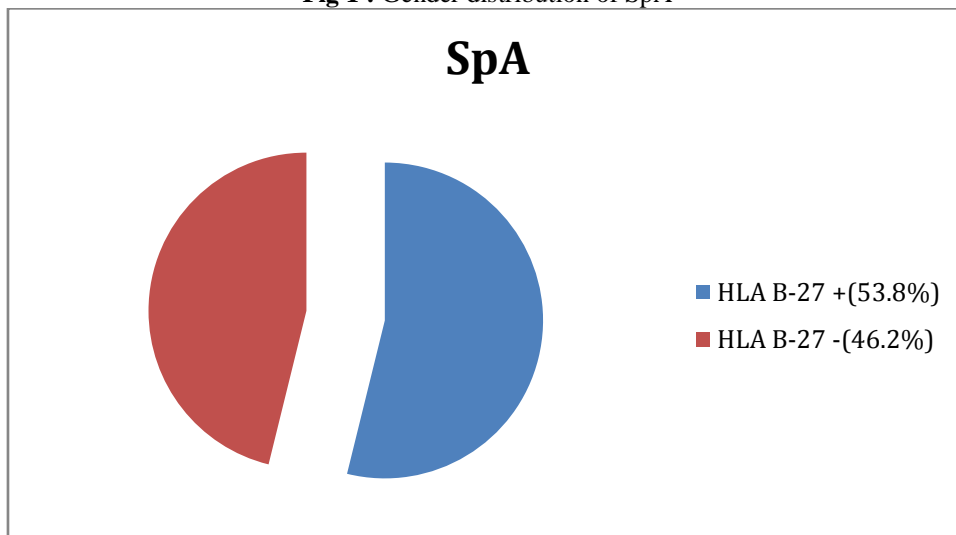


Fig 2 : Total HLA B-27 association with SpA

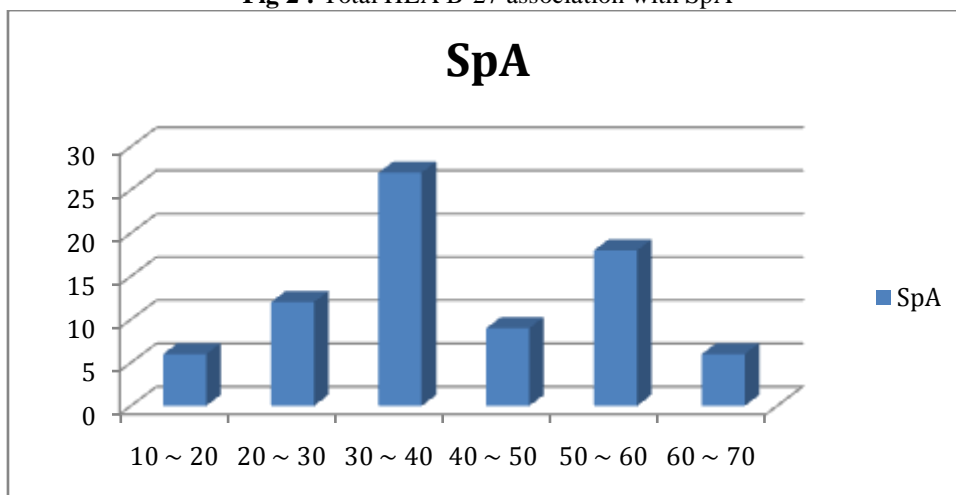


Fig 3 : Age(in years) distribution of SpA

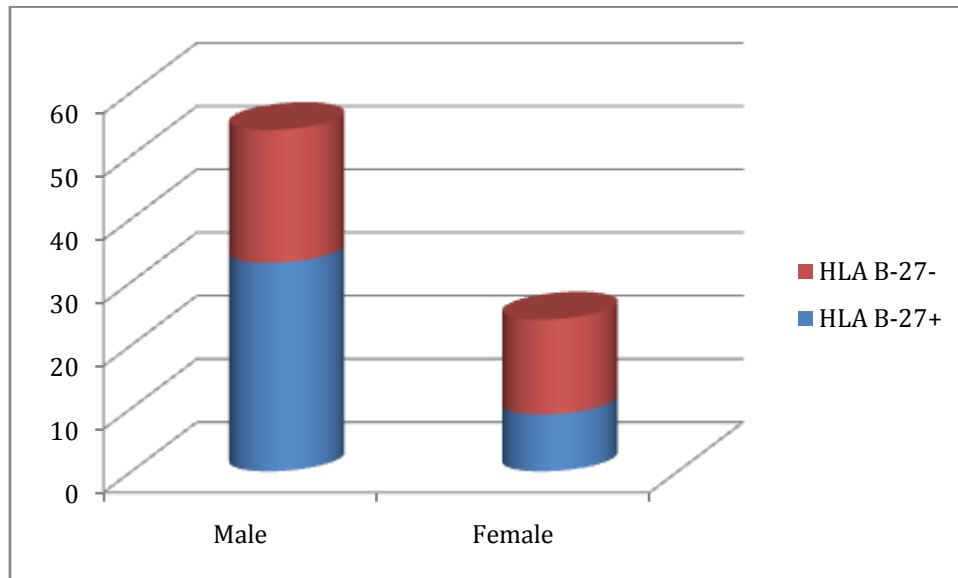


Fig 4 : HLA B-27 association in SpA w.r.t gender distribution

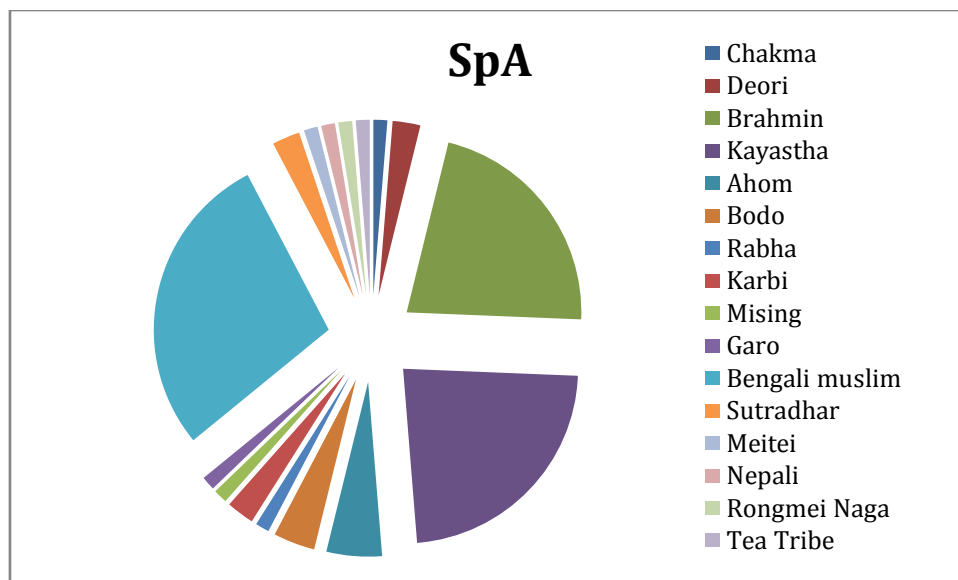


Fig 5 : Ethnic distribution of SpA in North-East India

V. CONCLUSIONS:

This study suggests that unlike previously reported literature we found much less association of HLA-B27 with SpA. Further, the gender ratio and HLA-B27 positivity varied among different ethnic groups studied.

REFERENCES:

- [1]. Taurog J.D, Carter J.D: The Spondylo arthritides; Harrisons principles of internal medicine : McGraw Hill Education; 19th edition, chapter 384,p:2169.
- [2]. Nepom G.T : The Major Histocompatibility Complex; Harrisons principles of internal medicine : McGraw Hill Education;19th edition,chapter 373e.
- [3]. <https://academic.oup.com/rheumatology/article/47/2/132/1788949>
- [4]. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5693696/>
- [5]. A.N.M. Irshad Ali and Indranoshee Das;Tribal Situation in North East India;Studies of Tribes and Tribals;Volume 1,2003-Issue 2
- [6]. Pachuau,Rintluanga(2009) Mizoram: A study in Comprehensive Geograph.Northern Book Centre



- [7]. Commissioner for Linguistic Minorities, Ministry of Minority Affairs, Government of India, pp.84-89. Retrieved 16 February 2012
- [8]. "Census of India: Comparative speaker's strength of Scheduled Languages- 1971, 1981, 1991 and 2001" Retrieved 13 December 2016
- [9]. Census of India 2011, Provisional Population

- Bengali Muslims
- Tai phake people
- Tibeto-Burman
- Jalia kaibarta
- Khamyang people
- Sutradhars of Assam
- Nath
- Kumar
- Hira

Annexure 1 :

ETHNIC COMMUNITIES IN NORTH-EAST INDIA⁵⁻⁹

ETHNIC COMMUNITIES IN ARUNACHAL PRADESH

- Monpa
- Adi
- Nyishi
- Tangsa
- Mishmi
- Hill Miri
- Chakma
- Tagin
- Hrusho
- Padam
- Minyong
- Jingpo
- Bugun
- Galo
- Lisu
- Chugpa
- Memba
- Miju Mishmi
- Tai phake
- Deori
- Tani
- Tutsa
- Na

ETHNIC COMMUNITIES OF ASSAM

- Assamese people - Ahoms, Assamese Brahmins, Assamese kayasthas
- Bodo
- Rabha
- Tiwa
- Karbi
- Dimasas
- Mising
- Rajbongshi
- Deori
- Garo
- Khasi
- Santal
- Chutiya
- Bodo-Kachari
- Tea tribes of Assam

ETHNIC COMMUNITIES IN MANIPUR

- Meitei
- Tangkhul
- Gangte
- Pangal
- Liangmai
- Vaiphei
- Poumai
- Rongmai
- Maring Naga
- Maram Naga
- Monsang Naga
- Manipuri Brahmin
- Mao Naga
- Kom people
- Anal Naga
- Sukta people
- Bishnupuria Manipuri people
- Manipuri Kshatriyas

ETHNIC COMMUNITIES IN MEGHALAYA

- Khasi
- Garo
- Jaintia
- Bengali
- Nepali
- Hajong
- Biate
- Koch
- Tiwa
- Rabha
- Kuki
- Sheikh

ETHNIC COMMUNITIES IN MIZORAM

- Lusei people
- Pawi
- Paite
- Mara
- Ralte
- Hmar

ETHNIC COMMUNITIES IN NAGALAND

- Angami Naga
- Lotha Naga
- Ao Naga



- Rengma Naga
- Chakhesang Naga
- Phom Naga
- Pochury Naga
- Khaimniung Naga

ETHNIC COMMUNITIES IN TRIPURA

- Bengalis
- Tripuri people :includes
- Debbarma
- Tripura
- Reang
- Jamatia
- Koloj
- Noatia
- Murasing
- Uchoi
- Rupini
- Chakma people
- Halem tribe
- Panoriya