IOCD 2025 Conference

The 1st International Online Conference on Diseases

09–11 September 2025 | Online

MDPI

HLA-B27 in Moroccan Seronegative Spondylarthritis Patients

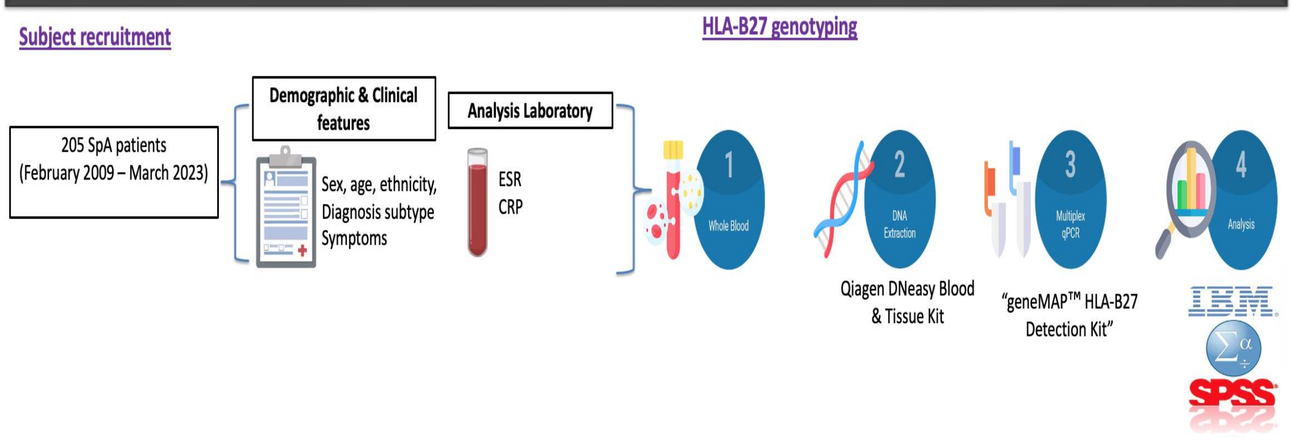
Zeineb ZIAN[1], Aya CHAWAD[1], Fatima Zahra EL ANSARI[1,2], Hasna AZMI[3], Joaira BAKKACH[4], Farah JOUALI[2], Jamal FEKKAK[2], Mohcine BENNANI MECHITA[1]

1 Intelligent Automation & BioMed Genomics Laboratory, Faculty of Sciences and Techniques of Tangier, Abdelmalek Essaadi University, Tetouan, Morocco
2 Molecular Biology Department, ANOUAL Laboratory, Casablanca, Morocco.
3 Laboratory of Virology, Oncology, Biosciences, Environment and New Energies, Faculty of Sciences and Techniques Mohammedia, University Hassan II of Casablanca, Casablanca, Morocco
4 Higher Institute of Nursing Professions and Health Techniques of Tetouan, Tetouan, Morocco.
Correspondence: z.zian@uae.ac.ma

INTRODUCTION & AIM

- Seronegative spondyloarthritis (SpA) is a group of immune-mediated inflammatory rheumatic disorders strongly associated with human leukocyte antigen B-27 (HLA-B27), especially ankylosing spondylitis (AS).
- There are currently no published studies on the prevalence of HLA-B27 in SpA subtypes among the North African population, especially in Moroccan patients. Only data on HLA-B27 prevalence in the Moroccan AS population are available so far.
- To address this gap, this study is the first to investigate the distribution of HLA-B27 in Moroccan patients with SpA and its association with clinical and biological markers.

METHODS



RESULTS & DISCUSSION

- ✓ HLA-B27 tested positive in 31 patients (15.1%), with a higher prevalence in men ($p<0.05$) and a strong association with AS ($p<0.001$).
- ✓ Peripheral arthritis and extra-articular involvement were more frequent in PsA and EnA than in other subtypes. A family history of SpA was observed exclusively in AS. Skin involvement was predominant in PsA, and bowel disease was exclusive to EnA (**Table 1**).
- ✓ A positive correlation was observed between HLA-B27 positivity and increased erythrocyte sedimentation rate (ESR) ($p< 0.01$) and C-reactive protein (CRP) levels ($p< 0.05$).

Table 1. Demographic and clinical characteristics of patients according to SpA subtypes

Feature	AS (n=19)	PsA (n=11)	EnA (n=32)	uSpA (n=143)	P value
Male/Female	12/7 (1.7)	3/8 (0.4)	5/27 (0.2)	22/121 (0.2)	< 0.001
Current Age (Mean ±SD)	44.37 ±13.79	43.82 ±10.66	45 ±14.5	43.3 ±14.1	-
Age at disease onset (Mean ±SD)	27.26 ±14.59	35.3 ±13.46	39.31 ±13.90	37.64 ±14.88	-
HLA-B27 positivity (n, %)	15 (78.95)	1 (9.09)	4 (12.5)	11 (7.7)	< 0.001
Juvenile onset (<16) (n, %)	6 (31.6)	0	2 (6.25)	12 (8.4)	<0.05
Late onset (>40) (n, %)	4 (21)	5 (45.4)	15 (46.9)	56 (39.2)	NS
Peripheral arthritis (n, %)	10 (52.6)	10 (90.9)	27 (84.4)	100 (69.9)	<0.05
Extra-articular involvement (n, %)	6 (31.6)	8 (72.7)	23 (71.9)	5 (3.5)	< 0.001
Family History (n, %)	9 (47.4)	0	0	0	< 0.001
Inflammatory back pain (n, %)	12 (63.2)	3 (27.3)	16 (50)	56 (39.2)	NS
Morning stiffness (n, %)	7 (36.8)	4 (36.4)	10 (31.3)	21 (14.7)	<0.05
Talalgia (n, %)	1 (5.3)	1 (9.09)	7 (21.9)	37 (25.9)	NS
Buttock pain (n, %)	3 (15.8)	0	1 (3.1)	10 (7)	NS
Hip pain (n, %)	9 (47.4)	2 (18.2)	1 (3.1)	8 (5.6)	< 0.001
Acute interior uveitis (n, %)	6 (31.6)	0	0	1 (0.7)	< 0.001
Fatigue (n, %)	1 (5.3)	2 (18.2)	3 (9.4)	19 (13.3)	NS
Skin involvement (n, %)	0	9 (81.8)	1 (3.1)	2 (1.4)	< 0.001
Bowel disease (n, %)	0	0	2 (6.3)	0	< 0.001

AS: ankylosing spondylitis, EnA: enteropathic arthritis, HLA-B27: human leukocyte antigen B27; NS: not significant, PsA: psoriatic arthritis, SD: standard deviation; uSpA: undifferentiated arthritis.

- ✓ The frequency of HLA-B27 among Moroccan AS patients in our study (78.9%) is significantly higher than in other MENA countries, such as Algeria, Palestine, Iraq, Saudi Arabia, and Lebanon (**Table 2**).

Table 2. Comparison of *HLA-B27* prevalence in SpA patients from our cohort and some MENA countries

SpA subtypes	Country		Sample Size	Age (Mean ±SD)	Sex Ratio M/F	Prevalence (%)
Ankylosing Spondylitis	Morocco	Our study, 2023	19	44.37±13.79	12/7 (1.7)	78.9
		Casablanca, 2013[1]	116	37.94±13.44	54/62 (0.8)	**46.5***
		Marrakech, 2015[2]	53	37.8 ± 11.5	32/21 (1.5)	**45***
	Algeria	Oran, 2018[3]	81	39.80 ± 1.6	37/44 (0.8)	**52***
	Egypt	Upper Egypt, 2018[4]	70	35.46 ± 12.1	(2.9)	74.5
	Lebanon	Nationwide, 2019[5]	141	35.7	86/55 (1.5)	**41***
	Qatar	Doha, 2019[6]	205	41.5	146/59 (2.3)	70
	Iraq	Baghdad, 2014[7]	318	-	288/30 (9.6)	**55***
	Palestine	Ramallah,2018[8]	112	-	10/8 (1.3)	**20.5****
	Saudi Arabia	Riyadh, 2021[9]	44	39.25 ± 10.99	26/18 (1.4)	**28.6****
Psoriatic Arthritis	Morocco	Our study, 2023	11	43.82±10.66	2/9 (0.2)	9
	Iran	Kashan, 2015[10]	54	-	-	31.5
	Saudi Arabia	Riyadh, 2021[11]	38	42.63 ± 12.49	14/24 (0.58)	22.7
Enteropathic Arthritis	Morocco	Our study, 2023	32	45±14.5	5/27 (0.18)	12.5
	Saudi Arabia	Riyadh, 2021[12]	12	35.42 ± 12.77	7/5 (1.4)	14.3
	Iran	Kashan, 2015[13]	66	-	-	18.2
Undifferentiated Spondyloarthritis	Morocco	Our study, 2023	143	43.3±14.1	22/121(0.18)	7
	Iran	Kashan,2015[14]	28	-	6/5 (1.2)	17.9

F: Female, M: Male, SD: Standard Deviation, SpA: Seronegative Spondyloarthritis
*$p<0.05$, **$p<0.001$

CONCLUSION

- A strong association between HLA-B27 and AS, with a higher prevalence observed in men.
- The correlation between HLA-B27 positivity and inflammatory markers supports its potential role as a biomarker of disease severity.
- Our data aligns with several reports from the MENA region, although some differences may be explained by ethnic and genetic diversity, variations in diagnostic approaches and detection sensitivity, as well as population sampling strategies.
- Further studies are warranted to better elucidate the genetic determinants underlying SpA susceptibility and disease progression.

REFERENCES

1. Dahmani, C. A. *et al*. Association of the HLA-B27 antigen and the CTLA 4 gene CT 60/rs3087243 polymorphism with ankylosing spondylitis in Algerian population: A case–control study. International Journal of Immunogenetics, 45(3), 109-117 (2018).
2. Ziade, N., *et al.* HLA-B27 prevalence in axial spondyloarthritis patients and in blood donors in a Lebanese population: Results from a nationwide study. International Journal of Rheumatic Diseases, 22(4), 708-714 (2019).
3. *Hussein, A., et al. Prevalence and Comparison of HLA-B27 among Ankylosing Spondylitis Patients in Palestine and Arab Population* (2018).
4. Bedaiwi, M. K., *et al*. The delay of diagnosis in spondyloarthropathy patients in a tertiary hospital in Saudi Arabia. Cureus, 13(1) (2021).
5. Moshrif, A., *et al*. Characterization of ankylosing spondylitis in Upper Egypt. Int J Clin Rheumatol, 13(1), 52-59 (2018).