HLA-B27 Prevalence in Arab Populations and Among Patients with Ankylosing Spondylitis

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ABSTRACT. ***Objective.*** To investigate prevalence of HLA-B27 among general Arab populations and among patients with ankylosing spondylitis (AS), and to review published data.

Methods. The prevalence of HLA-B27 was studied among 2579 unrelated healthy Jordanians, almost equally divided among Palestinian refugees and natives of Jordan, reflecting the general population of Jordan. The prevalence of HLA-B27 was also studied among 129 patients with AS, 70 from Jordan, and the remaining 59 from Qatar. HLA typing was performed by standard 2-stage micro-lymphocytotoxicity method. We also reviewed published English language studies of HLA-B27 in Arab patients with AS and general populations retrieved through Medline and cross-reference search.

Results. We observed that the general prevalence of HLA-B27 among Jordanians is 2.4%; while the reported prevalence ranges between 2% and 5% among major Arab populations. The prevalence of HLA-B27 among patients with AS is 71% in Jordan and 73% in Qatar, while the reported prevalence from pooled published data from various Arab populations is 64%.

Conclusion. From these data one can conclude that HLA-B27 is present in about 2% to 5% among major Arab populations and that its prevalence in Arab patients with AS is closer to 70%. (First Release July 1 2012; J Rheumatol 2012;39:1675–7; doi:10.3899/jrheum.120403)

Key Indexing Terms:

HLA-B27	ANKYLOSING SPONDYLITIS	ARABS
PREVALENCE	MIDDLE EAST	NORTH AFRICA

There is a remarkably strong association between ankylosing spondylitis (AS) and HLA-B27[1,2]. The world-wide prevalence of HLA-B27 and the strength of its association with AS vary markedly. Generally speaking, there is a close correlation between prevalence of HLA-B27 and prevalence of AS in a given population. Thus, AS is virtually absent in populations that lack HLA-B27, such as the Australian Aborigines and African Bantu populations of unmixed ancestry[2,3,4]. A few studies from the Arab world have looked into the prevalence of HLA-B27 in the general population and among patients with AS; these studies have involved a relatively small number of subjects.

We present data on the prevalence of HLA-B27 from Jordan and Qatar, based on a larger number of subjects, and summarize studies of Arab populations published in English.

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MATERIALS AND METHODS

Prevalence of HLA-B27 was studied among 2579 unrelated healthy Jordanians who were HLA typed as potential organ transplant donors; they comprised an almost equal number of Palestinians and native Jordanians, reflecting the general population of Jordan. We also studied 134 patients with AS, all of whom satisfied the modified New York criteria[5]; 70 of these patients were identified at the University Hospital in Amman, Jordan, and the remaining 64 at Hamad Medical Corporation in Doha, Qatar.

HLA typing was done by the standard 2-stage micro-lymphocytotoxicity technique with commercial kits.

We also reviewed previous studies of Arab populations that have been published in English by searching Medline and cross-reference between published data from different parts of the Arab world.

RESULTS

We observed that HLA-B27 was present in 2.4% of 2579 healthy unrelated individuals among the general population in Jordan. A total of 70 patients with AS were identified at the University Hospital in Amman, Jordan, between 1996 and 2010. Their male to female ratio was 10:1; mean age at onset of symptoms (inflammatory back pain or peripheral arthritis) was 22.7 ± 5 years and median age was 22 years (range 12–40 yrs). HLA-B27 typing was done in 49 of these 70 patients, and 71% of them were found to possess this gene. Grade 4 sacroiliitis was seen in 83%, while 17% had grade 2–3 sacroiliitis. Complete fusion of the lumbar spine

was seen in 76% of patients, while the rest had either early changes or partial fusion. Cervical spine was involved in 86% of patients. Hip and peripheral arthritis were seen in about half the patients for each. Anterior uveitis was seen in 26%.

In Doha, Qatar, a total of 59 Arab patients with AS (15 Qatari, 26 Jordanians/Palestinians, and 18 Egyptians) were typed for HLA-B27, and 73% (43/59) were found to possess this gene [the percentages were 80% (12/15) among Qatari, 69% (18/26) among Jordanians/Palestinians, and 72% (13/18) among Egyptian patients].

Our review of published data showed the prevalence of HLA-B27 to be 0.3% in Oman[6], 0.5% and 0.8% in Emarati Arabs in the United Arab Emirate (UAE)[7,8], 1.3% in Saudi Arabia[9], 4% in Kuwait[10], 1.4% in Syria[11], 1.4% in Lebanon[12,13,14], 2.1% in Iraq[15], 4.7% in Egypt[16], 4% in Algeria[17], 2.8% in Sudan[18], 1.9% to 6% in Tunisia[19,20,21,22], and 2.7% to 6.4% in Morocco[23,24,25].

Table 1 lists the reported frequency of HLA-B27 in patients with AS from the various Arab countries. It includes 2 previous reports from Jordan containing a small number of patients that had reported 75% and 81% prevalence of HLA-B27 in patients with AS[26,27], not much higher than that observed (71%) in our study.

Table 1. HLA-B27 in Arab patients with AS. Data are percentages.

Country	HLA-B27 Prevalence in Patients with AS
United Arab Emirates	56 (n = 16)[35]
Saudi Arabia	67 (n = 12)[36]
Syria	60 (n = 50)[11]
Lebanon	26.3 (n = 19)[13]
Iraq	84 (n = 25)[15]
Kuwait	25.7 (n = 35)[10]
	78 (n = 9)[37]
Jordan	71 (n = 59)[Current study]
	75 (n = 20)[25,30]
	81 (n = 52)[26,31]
Qatar	73 (n = 64)[Current study]
Tunisia	55.85 (n = 34)[19]
	42.9 (n = 14)[20]
	69 (n = 50)[38]
	62 (n = 100)[21]
Morocco	67 (n = 49)[39]
	63 (n = 32)[40]
	58.6 (n = 46)[24]
Algeria	63 (n = 129)[17]
Total	64 (n = 800)

DISCUSSION

The world-wide prevalence of HLA-B27 as well as the strength of its association with AS varies markedly. Whereas approximately 90% of northern European patients with primary AS (unassociated with psoriasis or inflammatory bowel disease) possess HLA-B27, this association drops appreciably in countries surrounding the Mediterranean Sea. Among the non-Arab countries in and near the Middle East, HLA-B27 is present in 70% to 91% in Turkish patients with AS[28,29], 80.5% in Greek patients[30], and in 68% to 73% in Iranian patients[31,32]. The frequency of HLA-B27 in the general population was found to be 2.6% to 6.8% in Turkey[33,34] and 3.95% in Iran.

A few studies from the Arab world have reported the prevalence of HLA-B27 in the general population and among patients with AS. Published data indicate that HLA-B27 is present in about 2% to 5% among the major Arab populations. We found HLA-B27 prevalence to be 2.4% in Jordan among a much larger number of subjects. We failed to find any published data on HLA-B27 prevalence in the general population or among patients with AS from Yemen, Libya, and Mauritania.

The prevalence of HLA-B27 is 64% if derived from pooled data of 805 Arab patients with AS (Table 1), but many reports are based on small numbers of patients. The reason for such small numbers could possibly be low disease ascertainment or a true low prevalence of AS in some parts of the Arab world that may be associated with low prevalence of HLA-B27 in that specific population. If one restricts analysis to larger studies, about 70% of Arab patients with AS possess HLA-B27. Lastly, it is important to point out that there are no reports of proper epidemiologic studies from Arab countries to determine the prevalence of AS in the general population.

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