

Prevalence of HLA-B27 in the group of patients referred to Danesh clinical laboratory

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ABSTRACT

Introduction: HLA B27 is a sub class of Human leukocyte antigen (HLA) class I molecule. It was known as the first genetic risk factor associating with ankylosing spondylitis (AS). Allele Frequency of HLA-B27 alleles is different across populations. The present study is to investigate the prevalence of HLA-B27 in patients referred to Danesh clinical laboratory during 2014 to 2015.

Methods: Among 178 patient referred to our lab, 171 data were valid. 5ml blood samples were obtained in heparinized tubes for HLA typing test. Direct typing of the HLA-B27 allele was performed by the standard micro lymphocytotoxicity test (MLCT method).

Results: A total of 171 patients have been typed for HLA-B27. The prevalence of HLA-B27 positive was found as 16.4%.

Conclusion: A national level of HLA B27 prevalence approximation is required for public health management particularly because of recent improvements in diagnostic testing for the disorder.

Key words: HLA B27, Prevalence, Epidemiology, Diagnosis

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Introduction:

HLA B27 is a sub class of Human leukocyte antigen (HLA) class I molecule. It was known as the first genetic risk factor associating with ankylosing spondylitis (AS). HLA B27 remains the most significant risk locus for this kind of spondyloarthropathy (1). It has been demonstrated that HLA B27 is associated with diseases such as heart valves disorders, conduction system and disorders of the immune system (2). It is documented in human populations that the frequency of the gene reflects the frequency of AS but the mechanism of contribution of HLA protein to disease remains a source of strong speculation. Some studies suggest that misfolding of HLA B27 molecule due to aberrant processing of antigenic peptides and endoplasmic reticulum stress results to form homo-dimers. Allele Frequency of HLA-B27 alleles is different across populations (3). HLA-B27 is highly prevalent in Northern Eurasia and North America but decreases in the United Kingdom and Mediterranean regions (3,4). Generally in a similar mode, HLA-B27 prevalence decreases from west to east. The present study is to investigate the prevalence of HLA-B27 in patients referred to Danesh clinical laboratory during 2014 to 2015.

Methods:

Study participants

Among 178 patient unrelated patients referred to our lab, 171 data were valid. Participants consist of both sexes (57 males and 114 females), residents of Iran and mixed ethnic origins. A summary of the basic demographics of patients has been shown in Table 1.

Table 1. Distribution of patients by sex

	n	%
Male	57	33.3
Female	114	66.7
total	171	100

HLA-B27 typing

5ml of peripheral blood were obtained in heparinized tubes for HLA typing test. Direct typing of the HLA-B27 allele was performed using mononuclear cells isolated from whole blood

through the standard micro lymphocytotoxicity test (MLCT method).

Statistical methods

Prevalence was considered according to the sex and age distribution. HLA-B27 status estimated in order to HLA-B27 typing. Categorical variables were compared via the χ^2 test and continuous variables using the Student t test. Statistical analysis was performed using SPSS 17.

Results:

A total of 171 patients have been typed for HLA-B27 using MLCT test. The prevalence of HLA-B27 positive was noted as 16.4%. Participants had a mean age of 37.7 years (See figure 1 and Table 2). These study participants were included 114 female (66.7%) and 57 male (33.3%). Among these patients 18 female (10.5%) and 10 male (5.8%) were HLA-B27-positive (See figure 2 and Table 3).

Table 2. Distribution of HLA-B27 by age

HLAB27			
	Positive	Negative	Total
mean age	37	40	38.5

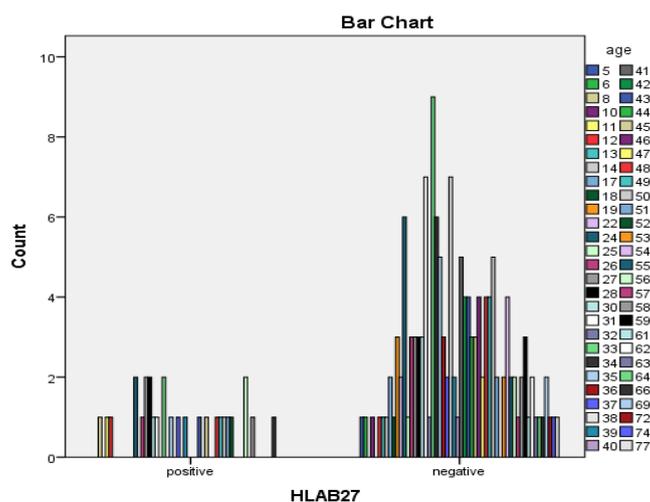
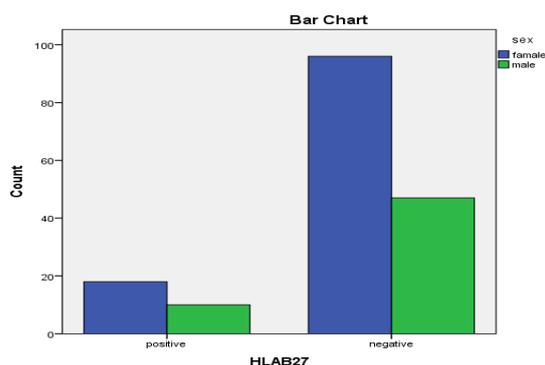


Figure 1

Discussion:

HLA-B27 testing is commonly used to aid in the diagnosis of Ankylosing spondylitis (5). As the clinical application of this locus there is a small number of frequency data for HLA-B27 in Iran population. The prevalence of HLAB27 positive individuals is different between different countries, and in Iran as reported by the previous studies, respectively (6). In the present study the prevalence of HLA-B27 positive was noted as 16.4%. Previous studies reported that in Southeast Asia frequency of HLA B27 is over than 12%, but in mainland China the range is between 2 and 6% (3). A recent study of HLA-B27 in 2,320 US adults reported a considerable decline in the prevalence of the HLA-B27 allele with age, which remained significant after adjustment for sex (7). According recent studies, it is demonstrated that HLA-B27 is one of the most generally employed clinical genetic tests (8).

Figure 2



The aim of our study was to investigate the HLA-B27 status in patients referred to Danesh clinical laboratory. In the current study, we found no evidence of a significant association in HLA-B27 prevalence in our patients according to mean age. Limitations of our study should be mentioned. This study is based on retrospective data. Since we recruited the patients' results using laboratory registration software, we don't have any data about their sign and symptoms or even their diagnosis outcome. Although HLA B27 has been widely considered from a clinical perspective, at this time there are relatively a small number of large-scale population studies of the prevalence of HLA B27. Among these, a few have been performed in Iran. A national level of HLA B27 prevalence approximation is required for public health management particularly

because of recent improvements in diagnostic testing for the disorder (9).

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