

HLA — B27 AND CHINESE ANKYLOSING SPONDYLITIS

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INTRODUCTION

Recently there has been an interest in HLA associations in various diseases. One of the strongest associations is HLA-B27 and ankylosing spondylitis (AS) ^{1,2}. Even though the strength of this association varies from one ethnic group to another, it appears that the association of B27 and AS holds true to all ethnic groups tested so far. We have recently studied HLA in patients with ankylosing spondylitis in yet another ethnic group namely the Chinese and reported here are the results.

PATIENTS AND METHODS

The patients studied were of Chinese ethnic group and included 29 with clinical and radiological proven AS and 16 with low back pain with no radiological evidence of AS or with causes other than AS. Controls consisted of 238 normal Chinese subjects reported previously (3). HLA typing was performed using the NIH Lymphocytotoxicity method (4) and a total of 26 locus A and B antigens were typed for using 196 antisera.

RESULTS

The HLA antigen frequency of the 29 AS patients as well as those of the 16 patients with low backache from other causes and normals is shown in Table 1. The most striking feature was the association of B27 and AS. The frequency of B27 was found in 28/29 (96.6%) patients with AS compared to 17/238 (7.1%) normals ($\chi^2 = 141.2$, corrected $p < .0001$, relative risk = 364). It was also significantly higher than in patients with low backache from other causes (corrected $p = 1.8 \times 10^{-8}$).

DISCUSSION

The association of B27 and Chinese AS patients is very strong. A relative risk of 364 is one of the strongest association so far detected in any ethnic group. In other words a B27 positive person has 364 times the chance of developing AS than a person without B27.

The fact that B27 is associated with AS in all ethnic groups so far tested strongly suggest a common etiological factor in these different ethnic groups. However, HLA genes alone do not explain AS. There are AS patients without B27, and most individual with B27 do not

develop the disease. Neither does it explain why males have a more severe form of the disease. One theory suggests that HLA-B27 is strongly linked to an AS disease susceptibility (DS) gene which give rise to AS. The strength of this B27 — DS gene linkage would then vary from different ethnic groups which would explain the finding that AS can occur without B27. AS and some forms of arthritis are associated with bouts of enteric

infection. The mechanism of the DS gene is unknown but may be linked to altered immune responses to enteric organisms. There is also some evidence that B27 cross reacts with *Klebsiella aerogenes* (5) and people possessing B27 would be susceptible to *Klebsiella* infections and in some yet undetermined ways, give rise to AS. However this does not explain the disease in non B27 individuals.

**TABLE 1
HLA AND ANKYLOSING SPONDYLITIS IN CHINESE**

	AS n = 29		OTHER BACKACHE n = 16		NORMAL n = 238	
A1	1	(3.4%)	1	(6.3%)	0	
A2	13	(44.8%)	11	(68.8%)	126	(52.9%)
A3	0		0		1	(0.4%)
A9	9	(31.0%)	3	(18.8%)	65	(27.3%)
A10	1	(3.4%)	1	(6.3%)	12	(5.0%)
A11	21	(72.4%)	8	(50.0%)	144	(60.5%)
A28	0		0		1	(0.4%)
A29	0		0		3	(1.3%)
Aw19	2	(6.9%)	3	(18.8%)	49	(20.6%)
B5	1	(3.4%)	4	(25.0%)	30	(12.6%)
B7	1	(3.4%)	0		4	(1.7%)
B8	0		0		1	(0.4%)
B12	0		0		8	(3.4%)
B13	2	(6.9%)	1	(6.3%)	48	(20.2%)
B14	0		0		0	
B15	4	(13.8%)	4	(25.0%)	53	(22.3%)
B17	3	(10.3%)	5	(31.3%)	34	(14.3%)
B18	0		0		4	(1.7%)
B27	28	(96.6%)	1	(6.3%)	17	(7.1%)
B37	0		0		1	(0.4%)
B40	10	(34.5%)	6	(37.5%)	98	(41.2%)
Bw16	3	(10.3%)	1	(6.3%)	26	(10.9%)
Bw21	0		0		0	
Bw22	4	(13.8%)	2	(12.5%)	29	(12.2%)
Bw35	0		0		12	(5.0%)
Bw46	1	(3.4%)	6	(37.5%)	54	(22.7%)

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