HLA ANTIGENS AND MYASTHENIA GRAVIS IN A TURKISH POPULATION

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SUMMARY : It is a well known fact that there is a correlation between the HLA system and various diseases. In this study, HLA typing was done in 40 patients with myasthenia gravis in order to investigate such a relationship. We found HLA - B8 in 45 % of the patients which was statistically significant. This result was consistent with most of the previous studies done on this subject.

***Key Words :** HLA Antigens, Antigens, Myasthenia Gravis.*

INTRODUCTION

Human leukocyte antigens (HLA) are controlled by a group of genes located on the control of immune responses. There are seven genetic loci which are designated as follows :

HLA-A, HLA-B, HLA-C, HLA-D, HLA-DR, HLA-DQ and HLA-DP (Schwartz, 1987).

Products of HLA genes are specific which are found on the surface of all nucleated cells. These antigens can be identified serologically.

There is a correlation between the HLA system and several diseases such as ankylosing spondylitis (HLA-B27), Coeliac disease (HLA-DR3), Behçet's disease (HLA-B5) and multiple sclerosis (HLA-DR2) (Hoffman and Panitch, 1987). In myasthenia gravis, HLA-B8, HLA-B12 and HLA-DR3 are the most common types (Schwartz, 1987; Pirskanen, 1988; Özdemir et al. 1988; Yashida et al. 1977).

In two different studies done in China and Hong Kong, HLA-A2, HLA-DRW9 showed a significant increase, whereas HLA-BW46 was prevalent in juvenile onset ocular myasthenia gravis (Thajed et al. 1987; Halkins et al. 1986).

A study done in American blacks showed a significant increase in HLA-Al and HLA-B8 (Christiansen et al. 1984).

MATERIALS AND METHODS

Patients were diagnosed as having myasthenia gravis by history, neurological examination, Tensilon test and repetitive nerve stimulation test.

HLA typing was done using the two phase NIH method (Rey et al. 1973). 31 specific HLA allels related to A and B loci were determined by utilizing 76 well characterized antisera. Lymphocytes were separated with Ficoll-Paque according to the Boyum method (Boyum, 1967). Lymphocyte suspensions were incubated at 37° C by placement in microtitration plaques lyophilized with serum. The suspensions were incubated again for one hour at 37° by adding rabbit complement following the first procedure. Interpretation was done next with a Wild model inverted microscope by counting the

percentege of dead cells in each hole after the addition of trypan blue and waiting for 2-3 minutes. 3+ and 4+ reactions were taken as being positive. 300 normal persons were included in the study as the control group.

Statistical analyses were carried out using the Chi-Square and Fisher's Exact tests.

RESULTS

HLA-B8 was found in 45 % of the myasthenic patients whereas the control group had this antigen in 7 %. The difference between these findings was statistically significant ($p<0.005$). HLA-BW35 was significantly lower in the patient group as compared with the controls ($p<0.000001$).

DISCUSSION

The immunological aspects of myasthenia gravis has been widely investigated, in terms of its cellular and humoral immunity characteristics as well as HLA types (Aarli et al. 1979; Huang et al. 1977; Mehra et al. 1983).

In our study, HLA-B8 was found to be significantly common in myasthenic patients. This finding, despite being in accordance with various studies, does not agree with some others (Schwartz, 1987; Pirskanen, 1988; Özdemir et al. 1988; Yashida et al. 1977). Myasthenic patients with the HLA-B8 type are particularly young women who usually have thymic hyperplasia (Priskanen, 1988; Compston et al. 1980).

A study in Japan showed the prevalence of HLA-B12 in patients with myasthenia gravis (Yashida et al. 1977). This finding may point at a racial factor. On the other had, the low frequency of B35 antigen in the patient group as compared to controls, defies a reasonable explanation in the light of our current knowledge. Although a rise in a particular HLA type in a given disease is meaningful, the significance of a reverse situation remains unknown.

HLA type	Myasthenia gravis		Control		P
	(n : 40)		(n : 300)		
	number	%	number	%	
A1*	6	15	54	18	0.062 (>0.05)
A2*	8	20	111	37	3.767 (>0.05)
A3*	6	15	82	27.3	2.190 (>0.05)
A9*	8	20	106	35.3	3.066 (>0.05)
A10*	6	15	59	19.7	0.242 (>0.05)
A11*	5	12.5	59	13	0.917 (>0.05)
A28**	1	2.5	22	7.3	0.160 (>0.05)
A30**	1	2.5	18	6	0.303 (>0.05)
B5*	10	25	74	24.7	0.154 (>0.05)
B7**	2	5	27	9	0.154 (>0.05)
B8*	18	45	21	7	46.49 (>0.005)
B12**	1	2.5	36	12	0.023 (>0.05)
B13**	1	2.5	13	4.3	0.492 (>0.05)
B14**	1	2.5	23	7.7	0198 (>0.05)
B17**	2	5	21	7	0.738 (>0.05)
B18**	3	7.5	32	10.7	0.180 (>0.05)
B21**	1	2.5	11	3.7	0.738 (>0.05)
BW22**	2	5	12	4	0.220 (>0.05)
B35**	2	5	110	36.7	0.00001 (<0.000001)
B40**	1	2.5	14	4.7	0.413 (>0.05)

Table- 1 : Results of HLA typing the patient and control groups.
* Chi-Squre test was used for statistical analysis.
** Fisher's Exact Test was used for statistical analysis.

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