HLA typing of a Hong Kong Chinese family with intermediate uveitis

Intermediate uveitis (IU) is a potentially sight threatening condition seen in all racial groups. While the disorder is known to be associated with a number of systemic conditions, in the majority of cases, no underlying cause is found. Because autoimmunity may play a part in the pathogenesis of the disease, workers have studied the immunogenetics of non-familial IU and have suggested a role for certain HLA alleles such as HLA-A*28 HLA-DRB1*15, HLA-B*51, and B*08 in promoting susceptibility to the condition in predominantly white populations.[1–5]

While IU is a relatively common diagnosis in a uveitis clinic, constituting up to 15% of all uveitis cases seen,[6] there are few reports in the literature of familial cases. In this study, a Hong Kong Chinese family was identified, some members of who had been attending the uveitis clinic at a tertiary referral centre in the United Kingdom with IU.

Case report

The family members consist of four affected patients (father (resident in the United Kingdom since age 15) and three children (resident in United Kingdom since birth)) and four unaffected members (two siblings of father, mother, and one child) (fig 1). On examination, all affected family members had evidence of posterior synechae, vitritis (BIOS score 1–2), inferior vitreous snowballs, peripheral retinal venous sheathing and/or peripheral paravenous retinal pigment epithelial changes, consistent with the diagnosis of IU. No snow banking was identified in any patient. There was no medical history or symptoms, suggestive of tuberculosis or sarcoidosis however, one affected patient (II:4) has recently been diagnosed with multiple sclerosis. Blood was drawn from all eight family members for comprehensive class I and II HLA typing. After DNA was extracted from leucocytes, high resolution HLA-A*, B*, and DRB1* typing was performed by a sequence based method. HLA-Cw* and DQB1* alleles were typed by PCR-SSP at low to medium resolution. The study had the approval of the hospital local research ethics committee and blood was only drawn after informed consent had been given by the study subjects.

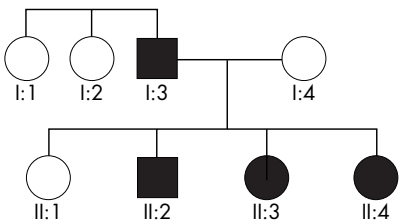

Figure 1 Pedigree of family with intermediate uveitis.

The results of the HLA typing are summarised in table 1. This shows that the haplotype HLA-A*0207, B*4601, Cw*01, DRB1*0403, DQB1*0302 may be associated with IU in this Chinese family.

Comment

While previous studies have tended to concentrate on the immunogenetics of IU in predominantly white populations, the disease is also known to be relatively common in the Chinese population.[7]

Previous studies of familial cases have shown a wide range of potential HLA associations. Augsburger *et al* in 1981 studied patients in two unrelated families with pars planitis.[8] In the first family, the affected members were a mother and three of her six children. All of the affected children were heterozygous for HLA-A2, A11, B5, B40, and Cw3, while the mother was homozygous for HLA-A11 and B5. In the second family, the two affected teenage boys shared HLA A2 and B18 antigens. Fitt *et al* also found two affected brothers who shared the paternal haplotype A31, B62, DRB1*1201/2, and DQB1*0301; however, their father was unaffected.[9] In neither study was the racial origin stated. In 1988. Wetzig *et al* found two affected white brothers who shared HLA A2, A3, B7, B57, DR2, and DR7.[10]

In the Hong Kong Chinese population, bone marrow donor registry data show the HLA-A*0207, B*4601 haplotype occurs with a frequency of 9.3%, while the HLA DRB1* 0403, DQB1*0302 combination is less common at 2.1%.[11 12] In our two generation family, all three affected children had an identical HLA haplotype, HLA-A*0207, B*4601, Cw*01, DRB1*0403 DQB1*0302 and shared this haplotype with their affected father, whereas the unaffected child did not inherit this paternal haplotype. In addition, two siblings of the father who were unaffected also lacked this parental haplotype. This suggests that some or all of these antigens, or other undefined antigens present within the haplotype, are important in the predisposition to IU in this family.

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Table 1 HLA alleles for each family member

Subject	Age	HLA A*		B*		Cw*		DRB1*		DQB1*	
1:1	47	1101	2402	1502	4001	08	07	1202	1501	0301	06
I:2	52	1101	3303	1502	5801	08	03	1202	1202	0301	0301
I:3*	44	0207	3303	4601	5801	01	03	0403	1202	0302	0301
I:4	42	0203	3303	3802	5801	07	03	0803	0301	0601	02
II:1	21	0203	3303	3802	5801	07	03	0803	1202	0601	0301
II:2*	16	0207	0203	4601	3802	01	07	0403	0803	0302	0601
II:3*	19	0207	0203	4601	3802	01	07	0403	0803	0302	0601
II:4*	23	0207	0203	4601	3802	01	07	0403	0803	0302	0601

*Denotes affected member.