

CHAPTER 3

RESULTS

1. HLA-DRB1 Frequencies in Patients with Graves' disease and normal controls

Allelic frequencies of HLA-DRB1 in patients with GD and in normal controls are shown in Table 8.. HLA-DRB1*15(01-03, 06), DRB1*09012, DRB1*03 and DRB1*04 alleles are commonly found in patients with GD (AF = 46.77 %, 20.97 %, 17.74 % and 16.94 %, respectively) while HLA-DRB1*15(01-03, 06), DRB1*12(01-03, 05) and DRB1*0701 are most frequently observed in normal controls (AF = 33.98 %, 24.27 % and 23.30 %, respectively). HLA-DRB1*01, DRB1*0819, DRB1*1001, DRB1*1307 and DRB1*14 were less frequently found in both groups (AF = 2.42%, 4.03%, 4.84%, 8.06%, 8.06% vs. 0.97%, 3.88%, 3.88%, 1.94%, 1.94%, respectively). The frequency of HLA-DRB1*08(01-19, except *0805,*0818) and HLA-DRB1*0701 are significantly decreased in GD compared to controls prior the correction, AF= 4.03% vs 12.62%, $p= 0.033$ and AF= 8.06% vs 23.30%, $p= 0.00$, respectively. However, the significant difference of the former allele is lost after correction. Whilst the significant negative association of HLA-DRB1*0701 allele with GD is sustained with $p<0.045$, OR = 0.289 and 95%CI = 0.131-0.637.

Table 8. Allelic frequencies of HLA-DRB1 in patients with Graves' disease (GD) and in normal controls of the Southern Thai populations.

HLA-DRB1 alleles	Patients (n=124) ^a	Controls (n=103) ^a	<i>P</i> value	<i>P_c</i> value	OR	95% CI
DRB1*01	3 (2.42)	1 (0.97)	NS	NS		
DRB1*03	22 (17.74)	14 (13.59)	NS	NS		
DRB1*04	21 (16.94)	21 (20.39)	NS	NS		
DRB1*0701	10 (8.06)	24 (23.30)	0.003	0.045	0.289	0.131-0.637
DRB1*08(01-19, except *0805,*0818)	5 (4.03)	13 (12.62)	0.033	NS	0.291	0.1-0.846
DRB1*0819	5 (4.03)	4 (3.88)	NS	NS		
DRB1*09012	26 (20.97)	20 (19.42)	NS	NS		
DRB1*1001	6 (4.84)	4 (3.88)	NS	NS		
DRB1*11(01-31)not (09,10,13,16,17,20,22)	13 (10.48)	6 (5.83)	NS	NS		
DRB1*12(01-03,05)	19 (15.32)	25 (24.27)	NS	NS		
DRB1*13	17 (13.71)	14 (13.59)	NS	NS		
DRB1*1307/14 (03,09,12,16,22,25,29,31)	10 (8.06)	2 (1.94)	NS	NS		
DRB1*14	10 (8.06)	2 (1.94)	NS	NS		
DRB1*15(01-03,06)	58 (46.77)	35 (33.98)	NS	NS		
DRB1*16(01-08)	15 (12.10)	11 (10.68)	NS	NS		
Total number of alleles	248 (100)	206 (100)	-	-		

a = number of patients and controls; pc = p value was corrected by the number of comparison; NS = non-significant DRB1*0701 (Chi-Square = 9.095) and DRB1*08(01-19, not 0805,0818) (Chi-Square = 4.570) was negatively associated with patients with GD.

2. HLA-DQB1 Frequencies in Patients with Graves' disease and normal controls

Allele frequencies of HLA-DQB1 in patients with Graves' disease (GD) and in normal controls are shown in Table 9. HLA-DQB1*0304, DQB1*0501, DQB1*0503 alleles are more common in patients with GD (AF = 20.16 %, 20.16 % and 20.16 %, respectively) whereas HLA-DQB1*0502, DQB1*02(01,02) and DQB1*0501 are frequently found in normal controls (AF = 24.27 %, 19.14 % and 17.48 %, consequently). DQB1*0504, DQB1*06(02,10,11,13), DQB1*06(04,05,06,09), DQB1*06(03,14), DQB1*0607, DQB1*0203, DQB1*0305, DQB1*0401, DQB1*0402, DQB1*02(01,02,03), DQB1*03(01,04), DQB1*03(02,03,06,07) and DQB1*0203/0304 are less frequently found in both groups (AF = 5.65, 6.45, 1.61, 1.61, 0.00, 4.03, 0.00, 5.65, 1.61, 0.81, 2.42, 0.81 and 2.42 vs. 4.85, 1.94, 4.85, 2.91, 0.97, 2.91, 2.91, 1.94, 2.91, 1.94, 4.85, 1.94 and 0.00, respectively). From this study, the frequencies of HLA-DQB1*0503 and HLA-DQB1*0304 are significantly higher in GD patients compared to controls (AF = 20.16 % vs. 6.80 %) with $P = 0.007$, OR = 3.463 and 95% CI = 1.431-8.382 and (AF = 20.16 % vs. 8.74 %) with $P = 0.027$, OR = 2.637 and 95% CI = 1.170-5.944, respectively. However, the significance of these associations are lost after correction with the number of comparison alleles.

Table 9 Allelic frequencies of HLA-DQB1 in patients with Graves' disease (GD) and in normal controls of the Southern Thai populations.

HLA-DQB1 allele	Patients =124) ^a	(<i>n</i> Controls(<i>n</i> =103) ^a	<i>P</i> value	<i>Pc</i> value	OR	95% CI
DQB1*0501	25 (20.16)	18 (17.48)	NS	NS		
DQB1*0502	33 (26.61)	25 (24.27)	NS	NS		
DQB1*0504	7 (5.65)	5 (4.85)	NS	NS		
DQB1*0503	25 (20.16)	7 (6.80)	0.007	NS	3.463	1.431-8.382
DQB1*0601	21 (16.94)	14 (13.59)	NS	NS		
DQB1*06(02,10,11,13)	8 (6.45)	2 (1.94)	NS	NS		
DQB1*06(04,05,06,09)	2 (1.61)	5 (4.85)	NS	NS		
DQB1*06(03,14)	2 (1.61)	3 (2.91)	NS	NS		
DQB1*0607	0 (0.00)	1 (0.97)	NS	NS		
DQB1*02(01,02)	22 (17.74)	20 (19.42)	NS	NS		
DQB1*0203	5 (4.03)	3 (2.91)	NS	NS		
DQB1*0304	25 (20.16)	9 (8.74)	0.027	NS	2.637	1.170-5.944
DQB1*0301	17 (13.71)	16 (15.53)	NS	NS		
DQB1*03(02,07)	9 (7.26)	13 (12.62)	NS	NS		
DQB1*0305	0 (0.00)	3 (2.91)	NS	NS		
DQB1*0401	7 (5.65)	2 (1.94)	NS	NS		
DQB1*0402	2 (1.61)	3 (2.91)	NS	NS		
DQB1*02(01,02,03)	1 (0.81)	2 (1.94)	NS	NS		
DQB1*03(01,04)	3 (2.42)	5 (4.85)	NS	NS		
DQB1*03(02,03,06,07)	1 (0.81)	2 (1.94)	NS	NS		
DQB1*03(03,06)	22 (17.74)	16 (15.53)	NS	NS		
DQB1*0203/0304	3 (2.42)	0 (0.00)	NS	NS		

a = number of patients and controls; pc = p value was corrected by the number of comparison; NS = non-significant DQB1*0503 (Chi-Square = 7.232, p 0.007) and *0304 (Chi-Square = 4.903, 0.027) respectively.