

and expected values. The reverse was true for the control group. In addition, if we take this comparison into consideration when checking for the observed and expected values for the alleles that showed no significant differences, it was also evident that the observed was higher than the expected for the patients group. In this case,

either the non-significant differences might be attributed to the small number of observations or that the contribution of such alleles was too little to be associated with the occurrence of the disease. This would demonstrate a clear picture about the association of these two alleles under the specificity of DR10 with astrocytoma.

**Table 1: Frequency and odds ratios for HLA-DRB1, DRB3, DRB4, DRB5 alleles in patients with astrocytoma in comparison with normal control subjects**

HLA-DRB1, DRB3, DRB4, DRB5		FREQUENCY (%)		ODDS VALUE		ODDS RATIO
Group	Allele	Patient	Control	Patient	Control	Patient
DR10(DRB1	10011	53	93	0.87	0.13	8.76
DR10(DRB1	10012	53	93	0.87	0.13	8.76
DR15(DRB1	15011	77	97	0.30	0.06	5.00
DR15(DRB1	15012	77	97	0.30	0.06	5.00
DR15(DRB1	15022	77	97	0.30	0.06	5.00
DR15(DRB1	15023	77	97	0.30	0.06	5.00
DR15(DRB	1503	77	97	0.30	0.06	5.00
DR15(DRB1	1504	77	97	0.30	0.06	5.00
DR15(DRB1	1505	77	97	0.30	0.06	5.00
DR15(DRB1	1506	77	97	0.30	0.06	5.00
DR15(DRB1	1507	77	97	0.30	0.06	5.00
DR52(DRB3)	0207	90	97	0.11	0.06	1.83
DR52(DRB3)	0208	90	97	0.11	0.06	1.83
DR53(DRB4)	01011	90	97	0.11	0.06	0.00
DR53(DRB4)	010111	90	100	0.11	0.00	0.11
DR51(DRB5)	01011	90	100	0.11	0.00	0.11
DR51(DRB5)	01012	90	93	0.11	0.13	0.84

### Discussion

Lack of human leukocyte antigens and costimulatory molecules have been suggested as mechanisms by which human malignant gliomas avoid immune recognition and elimination <sup>(12)</sup>. The major finding in this study was that the frequency decreased incidence of HLA-DRB1\*10011 and DRB1\*10012 in the Iraqi patients with brain astrocytomas compared with that in healthy controls. HLA SSP DNA typing on 30 patients revealed a significant decreased of DR10 alleles (DRB1\*10011 and DRB1\*10012) 0.53 vs 0.93, OR = 8.76, CI= 0.643-0.995 (p< 0.05), X<sup>2</sup> = 5.88. In addition to the absence of DRB1\*15 alleles in patients compared to controls. None of the tested HLA-DRB

alleles occurred at markedly altered frequency between the patients and normal individuals. It is may be the alleles that is associated with genetic susceptibility of this tumors but why? It was entirely unclear up to now; the pathogenesis of genetic association may be linkage disequilibrium (nonrandom association) and/ or changing in the recognized procession of the specific antigen. It is controversial whether or not HLA antigens expression in astrocytoma cells correlates with the development of disease and progression <sup>(14-16)</sup>. As reported in some studies, the reduced expression of HLA antigens in malignant tissues has been proposed as a mechanism thereby tumor-associated proteins cannot be