Malignancy and HLA-DRw13 in Patients on Maintenance Hemodialysis

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Dear Sir,

The increased incidence of malignancy in patients with chronic renal failure (CRF) and/or hemodialysis (HD) is well known, since these circumstances are themselves immunosuppressive, and impaired cellular immunity has been shown to be associated with carcinogenicity [1]. We have examined 303 patients seen in our dialysis clinic from 1974 to 1986, and found 17 (5.6%) malignancies (13 males, 4 females; 5 stomach, 3 liver, 2 prostate, 2 colon, 2 adult T-cell leukemia, 1 larynx, 1 breast, 1 tongue) in their clinical courses.

HLA phenotypings were performed in 14 out of 17 such patients in order to assess whether the high incidence of malignancy could be controlled by genetic factors. Phenotyping for HLA-A, -B, -C, and -DR was done using the method of Terasaki et al. [2] and the data were compared with those of a Japanese population (n = 1,998), as published in the 9th Japan HLA Workshop Reports [3].

The frequencies of all antigens, except HLA-DRw13, were not significantly different in either population. The frequency of HLA-DRw13 was 57% in patients versus 10% in controls (corrected p = 0.0000054, relative risk for HLA-DRw13 was 11.98; table I). HLA-Aw33 (39 vs. 14%) and -B44 (39 vs. 14%) were also increased due to linkage disequilibrium with -DRw13; however, the differences did not show statistical significance (corrected p = 0.294, p = 0.20, respectively).

Since HLA-DR antigens have been shown to regulate host responses to infections through cell-mediated immunity [4], the data presented here suggest some defect of immunosurveillance for malignancy in patients with CRF and HLA-DRw13. Gene(s) responsible for HLA-DRw13 antigen or very closely linked gene(s), might decrease T cell function and trigger against malignancy in CRF. To the best of our knowledge, this is the first report demonstrating the genetic factors developing malignancy in patients with CRF.

Table I. Phenotype frequency of HLA-DR specificity

* p = 0.0000006, corrected p = 0.0000054.

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