CELLULAR IMMUNITY IN HERPES SIMPLEX AND CYTOMEGALOVIRUS INFECTIONS IN RENAL ALLOGRAFT RECIPIENTS

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Immunosuppressed renal allograft recipients are at increased risk of developing an active infection with the herpes group of viruses [1]. This increased susceptibility does not, however, appear to be due to a defect in humoral antibody response [2]. Only recently has it been possible to investigate cell-mediated immunity using techniques such as the lymphocyte transformation test [3].

Employing this test, cell-mediated immunity in 59 patients, 31 men, 28 women, mean age 43 years, to cytomegalovirus (CMV) and herpes simplex virus (HSV) was measured at various times from one day to several years after kidney transplantation and the results compared with the findings in normals. Complement-fixing antibodies were also determined. In patients without complement-fixing antibodies to CMV and HSV there was no lymphocyte transformation on stimulation with these two viruses. This may indicate that in immunosuppressed renal allograft recipients absence of complement-fixing (humoral) antibody to CMV and HSV means lack of cell-mediated immunity. In the antibody-positive patients lymphocyte transformation to CMV was depressed at all periods after transplantation. With HSV the situation was different in that lymphocyte transformation was not depressed during the first year post-transplantation, but was depressed thereafter.

In 16 patients the lymphocyte transformation test using inactivated CMV and HSV was carried out at one to two weekly intervals during the first two to four post-transplant months. In nine graft recipients no cellular immunity to CMV could be demonstrated at the time of transplantation. Of these, six developed a typical symptomatic CMV infection, i.e. fever, leucopenia, relative lymphocytosis, dry cough, headache and malaise, and the three others had prolonged, unexplained fever which might have been caused by CMV infection. Evidence of cellular immunity began to appear in all with resolution of the illness, e.g. disappearance of fever. On the other hand, there was no certain relationship between cellular immunity and herpes simplex infections in these patients. Patients with lesions did not have a lower transformation index than patients without lesions.

In the same group of patients and controls interferon induction was measured
after stimulation of test lymphocytes with inactivated CMV and HSV. Interferon production was depressed in all groups of kidney-transplanted patients in comparison with normals, with regard to both CMV and HSV, but there was no association between the degree of depression and clinical symptoms of viral disease.

References