

BRIEF COMMENTARIES

Humoral and Cell-Mediated Immunity to
Cytomegaloviruses¹

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Specific immunologic resistance mechanisms to cytomegalovirus (CMV) have not been extensively studied in either normal subjects or immunosuppressed renal allograft recipients. Such studies are in progress in my laboratory. Humoral immunity to CMV appears to be unimpaired in infected transplant patients. The neutralizing (NT) antibody titers in 24 allograft recipients with active CMV infection were compared to titers in six normal subjects with active infection. The median NT antibody titers were 64 and 48, and geometric mean titers were 57.0 and 50.8, respectively. These differences are not significant. Thus, it is likely that an impairment of other mechanisms of resistance is responsible for the inability of allograft recipients to overcome their CMV infections. We have previously reported that interferon production is suppressed in lymphocytes of transplant patients stimulated *in vitro* by NDV (Rytel, M. W., and Balay, J., *J. Infect. Dis.* **127**, 445-449, 1973).

In preliminary studies, my colleague (Dr. Lyle Heim) and I have shown that cell-mediated immunity (CMI) to CMV is impaired in renal allograft recipients (Table 1). CMI was measured by antigen-specific [³H]thymidine uptake stimulation (*Cell. Immunol.* **19**, 8-21, 1975.) These results support the concept that CMI immunity rather than humoral immunity is preeminent in resistance to certain viral infections and may have a bearing on active or passive immunoprophylactic or therapeutic approaches to control of CMV infection.

TABLE 1
Cell-Mediated Immunity to CMV in Renal Allograft Recipients and Control Subjects

Group	Evidence of CMV infection ^a	Number	CM cell-mediated immunity ^b	
			Present	Absent
Normal subjects	yes	4	4	0
	no	2	0	2
Renal allograft recipients	yes	2	0	2
	no	—	—	—
Total		8	4	4

^aCMV isolation and/or \geq fourfold CF or NT antibody rise, or CF titer \geq 4, NT titer \geq 8.

^bLymphocyte transformation measured by antigen-specific stimulation of [³H]thymidine uptake. Reaction considered positive if stimulation index \geq 2 (stimulation index = stimulated cpm/unstimulated cpm).

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