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Prevention of Cytomegalovirus (CMV) Disease After Allogeneic Marrow Transplant by Ganciclovir Prophylaxis. JM Goodrich, R Bowden, C Keller, JD Meyers. Fred Hutchinson Cancer Research Center, Seattle, WA, USA.

CMV disease remains a significant problem in patients undergoing allogeneic marrow transplantation. Ganciclovir (GCV) given after engraftment for CMV excretion decreases CMV disease but is not an effective strategy for 12% of patients with disease as their first manifestation of CMV infection (NEJM, 12/91). We have studied the efficacy and toxicity of GCV given to CMV seropositive allogeneic marrow transplant patients after engraftment (absolute neutrophil count [ANC] >750/mm^3 for 2 consecutive days) in a double blind placebo controlled trial. GCV was given at the dose of 5 mg/kg BID intravenously for 5 days followed by 5 mg/kg/day until day 100. Of 64 total patients, 33 received GCV and 31 received placebo. In placebo recipients, 13 (58%) developed CMV infection compared to 1 of GCV recipients (3%) (P=0.0001 by log-rank). Seven placebo recipients (22.5%) developed CMV disease including interstitial pneumonia (N=3), gastrointestinal disease (N=3), and 1 patient developed both. There were no cases of CMV disease in the GCV group (P=0.0004). Neutropenia (ANC <750/mm^3) occurred in 9 GCV recipients (27%) compared to no cases in the placebo group (P=0.002). We conclude that GCV, given prophylactically after engraftment to CMV seropositive allogeneic marrow transplant patients, prevents CMV disease in the first 100 days after transplant.

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Quantification of Viral Nucleic Acids.
JC Fox, PD Griffiths and V C Emery. Royal Free Hospital School of Medicine, Division of Communicable Diseases, London, UK.

A method to quantitate the levels of viral nucleic acid in different clinical samples has been developed. This PCR-based technique relies upon the co-amplification of a control sequence, identical to the target sequence in all respects except that it can be distinguished by the presence of a unique restriction site. The method has been applied to the quantitative detection of cytomegalovirus DNA in the urine of congenitally-infected infants by using known copy numbers of cloned control sequence DNA and relating the measurable amounts of control vs non-control (the target) derived products. The data from these investigations indicate that a far higher level (approximately 1000 fold) of CMV amplifiable DNA was present than would be predicted from conventional TCID50 assays. This technique is being used to assay CMV DNA in sequential body fluid samples from renal transplant patients and correlating the results with clinical disease. In addition, the effects of ganciclovir on the levels of CMV in the body fluids of patients with CMV disease are also being assessed.