
BACKGROUND: Pancreas-kidney transplant recipients are at high risk for cytomegalovirus (CMV) disease despite prophylactic ganciclovir therapy. Because the impact of antiviral therapy on anti-CMV immune reactions is unknown, CMV-specific T-cell subsets in primary and recurrent CMV infection were analyzed in a pancreas-kidney transplant case study. METHODS: Major histocompatibility complex class I tetramers were used to detect peripheral CMV pp65-specific CD8 T cells. Intracellular cytokine staining was used to determine the frequency of CMV-specific CD4 T cells. Conventional virologic parameters and routine laboratory parameters were monitored. For ganciclovir resistance testing, CMV-UL97 genotyping was performed. RESULTS: Despite prophylactic ganciclovir therapy, primary CMV infection induced in vivo expansion of activated CMV-specific CD8 T cells. Interestingly, viral dissemination during recurrent CMV disease was a result of partially ganciclovir-resistant CMV. Recovery after discontinued ganciclovir treatment was associated with the expansion of CMV-specific CD4 T cells. CONCLUSION: Immunologic monitoring may contribute to clinical management of recurrent CMV disease.

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