Cytomegalovirus Infection in Heart and Lung Transplant Patients with focus on long-term outcome

Akademisk avhandling

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Avhandlingen baseras på följande delarbeten:

I. Johansson I, Mårtensson G, Andersson R. Cytomegalovirus and long-term outcome after lung transplantation in Gothenburg, Sweden. Scand J Infect Dis. 2010;42(2):129-36.

II. Johansson I. Mårtensson G, Nyström U, Nasic S, Andersson R. Lower incidence of CMV infection and acute rejections with valganciclovir prophylaxis in lung transplant recipients. BMC Infect Dis. 2013; 13:582.

III. Johansson I, Sigurdardottir V, Friman V, Selimovic N, Hanzen L, Nasic S, Nyström U, Andersson R. Cytomegalovirus infection and disease reduce 10-year cardiac allograft vasculopathy-free survival in heart transplant recipients. Submitted

IV. Johansson I. Andersson R, Sigurdardottir V, Dellgren G, Nyström U, Friman V. Low-dose valganciclovir as cytomegalovirus reactivation prophylaxis in heart transplant patients. Submitted

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ABSTRACT

Cytomegalovirus (CMV) infection is a common opportunistic infection after heart and lung transplantation. The aims of this thesis were to relate the incidence and severity of CMV infection and disease to different forms of antiviral prevention and to evaluate whether CMV is a risk factor for bronchiolitis obliterans syndrome (BOS) after lung transplantation and coronary artery vasculopathy (CAV) after heart transplantation.

CMV disease had a significant negative impact on 10-year survival as compared with no CMV infection in a study of 187 lung transplant patients. CMV prevention with 14 weeks of oral ganciclovir reduced the incidence and severity and prolonged the time to onset of CMV disease, as compared with four weeks of intravenous ganciclovir in CMV seropositive patients. Our finding supports the hypothesis that a longer duration of CMV prophylaxis is beneficial to lung transplant patients (Paper I).

BOS-free 4-year survival was significantly reduced with CMV disease as compared with no CMV infection. A lower incidence of CMV infection/disease and acute cellular rejection was observed with valganciclovir (3 months) when compared with oral ganciclovir (3 months), in CMV seropositive lung transplant patients. We concluded that CMV disease reduces BOS-free survival and that CMV prevention with valganciclovir is superior compared with oral ganciclovir in lung transplant patients (Paper II).

Survival and CAV-free survival were significantly reduced in heart transplant patients with CMV disease and asymptomatic CMV infection compared with no CMV infection after a 10-year follow-up in a study of 226 patients. Our study supports the use of an aggressive strategy for reducing not only CMV disease but also asymptomatic infection after heart transplantation (Paper III).

Low-dose valganciclovir prophylaxis (450 mg daily) for 3 months to CMV seropositive heart transplant recipients prevented CMV disease and significantly reduced the number of patients with reactivated asymptomatic CMV infection when compared with a pre-emptive approach. We found that low-dose valganciclovir is safe and effective, but this has to be confirmed in prospective studies (Paper IV).

Keywords: heart transplantation, lung transplantation, cytomegalovirus, ganciclovir, valganciclovir, bronchiolitis obliterans syndrome, cardiac allograft vasculopathy

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