

JOINT EVENT

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## Why cytomegalovirus infection is still important in patients with HIV- infection and CD4-counts < 100x106/mL

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**Background:** Before the era of combination therapy (c-ART) more than 90% of the patients with HIV-infection died of one or more opportunistic infections (OI). We and others noted early on that cytomegalovirus (CMV) was an important pathogen in these patients. We investigated: all OIs and opportunistic cancers (OCs) in patients who died with CD4+ counts below 100x106/mL; the prevalence of CMV encephalitis (CMV-E) and Korsakoff syndrome; CMV retinitis (CMV-R) in relation to CMV-E; CMV adrenalitis (CMV-A) and its relation to CMV-R and CMV-E; the correlation between CMV disease and other OIs and OC and; the interaction between CMV, Epstein Barr virus (EBV) and other human herpes viruses in a case of anaplastic large cell lymphoma (ALCL).

**Material & Methods:** We followed all patients died at Venhälsan from 1989-1996, with intensive blood testing, X-rays, CT scans, Synacthen tests, neurological examinations, and ophthalmologic examinations to.

**Results:** Of all 219 patients died with CD4+ < 100x106/mL, 87% showed signs of reactivated CMV-infection. CMV-R was found in 84, CMV-E in 65, CMV-A in 41 and CMV in the gastrointestinal tract in 21. Mycobacterial infection was found in 87 and toxoplasmosis in 29. Kaposi's sarcoma was the most common tumor (68 cases) followed by 22 patients with malignant lymphoma and 20 with CNS-lymphoma. CMV-reactivation was seen in most. A case of primary CMV-infection leading to a malignant lymphoma by interaction with two other herpes viruses (EBV and HHV-8) was also seen.

**Conclusion:** CMV-infection was the main OI in AIDS-patients during the pre-c-ART era and the main cause of death by itself or together with other OIs. Reactivation of CMV was found in 87%. The most important CMV manifestations were CMV-R, CMV-E and CMV-A that seemed to occur at the same time. This is still today important in patients with CD4+ <100x106/mL without access to modern HIV-treatment. These findings reveal the intimate interaction between HIV and CMV which should be considered in all co-infected patients also today.

### Recent Publications

1. Grützmeier S, Porwit A, Schmitt C, Sandström E, Åkerlund B and Ernberg I (2016) Fulminant anaplastic large cell lymphoma (ALCL) concomitant with primary cytomegalovirus (CMV) infection, and human herpes virus 8 (HHV-8) infection together with Epstein-Barr-virus (EBV) reactivation in a patient with asymptomatic HIV-infection. *Infectious Agent Cancer* DOI: 10.1186/s13027-016-0094-5.
2. Pirskanen Matell R, Grützmeier S, Nennesmo I, Sandström E and Ehrnst A (2009) Impairment of short-term memory and Korsakoff syndrome are common in AIDS patients with cytomegalovirus encephalitis. *European Journal of Neurology* 16(1):48-53.