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FAST FACTS AND CONCEPTS #213

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Introduction The prognosis of patients with HIV/AIDS (Human Immunodeficiency Virus infection/Acquired Immune Deficiency Syndrome) has improved dramatically since 1996 for those who have access to appropriate treatment. Due to the success of combination antiretroviral therapy (cART) since 1996 as well as improvements in the prevention and treatment HIV complications, over 80% of patients are now alive 10 years after sero-conversion. Deaths from opportunistic infections (OI) have declined while mortality from other co-morbidities has become more common (e.g. hepatitis B and C infection, renal failure, non-HIV-related cancers, cardiovascular disease, suicide, and complications of substance abuse). In fact, patients with CD4 counts >200 cells/mm3 are more likely to die from non-HIV-related illnesses than they are from complications of AIDS, at least over a time-frame of one decade. This Fast Fact discusses prognostication in patients who are suffering life-threatening complications related to HIV infection using data where cART was available. *Fast Fact* #214 will discuss prognosis specifically for malignancies arising in the setting of HIV infection.

Prognostic Principles

- Numerous factors affect prognosis such as age, remaining antiviral treatment options, opportunistic infections' response to therapy, the development of untreatable complications, functional status, nutritional status, CD4 cell count, and HIV viral load.
- In the pre-cART era median survival for people with a CD4 count < 50 cells/mm3 ranged between 12-27 months, and patients with CD4 counts <20 cells/mm3 had a median survival of 11 months. These ranges are grossly applicable to contemporary patients off cART due to lack of access, side effects, compliance problems, or multidrug resistance. Although individuals can have a dramatic clinical improvement and more favorable prognosis if they resume cART or new and effective drugs become available.
- Due to the rapidly changing field of HIV medicine, close collaboration with the patient's HIV provider is mandatory. While the following data are the best available they remain incomplete, may become outdated as therapies evolve, and should be applied to individual patients cautiously.
- Survival for all the HIV associated complications discussed in this Fast Fact has improved due to the use of cART.

Common causes of death in patients with HIV/AIDS with available survival data

- *Disseminated mycobacterium avium complex infection:* median survival is ~10 months with optimal therapy.
- Pneumocystis pneumonia: survival for all patients presenting is 80-90%. Short-term ICU survival is 75% in patients on cART and 37% not on cART.
- *Disseminated cytomegalovirus infection (including retinitis):* the largest prospective cohort study demonstrated a median survival of 35 months for all patients on cART compared with 8 months for those not using cART. Six month survival is 61-73% for patients not taking or not responding to cART, but 98% for patients with low CD4 counts who initiate and respond well to cART (CD4 count increases to over 50 cells/mm3), following their diagnosis of cytomegalovirus end organ disease.
- *Toxoplasma encephalitis:* 77-90% of patients are alive after 12 months if on cART, and most who die do so within 6 months of diagnosis. Persistence of altered mental status after initiation of anti-Toxoplasma therapy is a strong predictor of early death.
- *Progressive multifocal leukoencephalopathy:* median survival is ~11 months on cART, 4 months without

cART. If cART is started after PML is diagnosed, 1 year survival is 58% vs. 24% for those who develop PML already on cART.

- *AIDS Dementia complex:* is caused by HIV and results in progressive cognitive, motor, and behavioral decline. The median survival is 40-81 months from the time of diagnosis; shorter if the CD4 cell count remains <200 cells/mm3 with HIV-Viral load >5,000 copies/ml.
- *AIDS wasting syndrome:* is defined by the involuntary loss of >10% body weight along with fever not associated with an OI or neoplasm, and either chronic diarrhea or weakness. Patients with very low lean body mass index (mass in kilograms/height in meters squared) – less than 14.5kg/m2 – have a median survival of ~16 months. These data are from the mid-1990s and it is unclear if the prognosis has changed in the last decade. With unintentional weight loss which does not meet the syndrome definition (loss of 5-10% body weight) there is still a four-fold increased risk of death over 6 months.

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