Incidence of common non-opportunistic infections requiring hospitalization in HIV-positive patients in the era of highly-active antiretroviral therapy

Specific Aims: In patients infected with HIV, effective highly-active antiretroviral therapy (HAART) reduces the depletion of CD4 cells and thus the contribution of opportunistic infections (OIs) to morbidity and mortality. In a cohort of HIV-positive and -negative patients, our goal was to describe the incidence of a variety of non-opportunistic infections and compare rates between the two groups.

Hypothesis: The incidence of common infections will be greater among HIV-positive compared to HIV-negative patients.

Methods Used: The study sample was comprised of 33,420 HIV-positive patients and their 66,840 HIV-negative controls, matched for age, sex, and race; all patients were identified via the Veterans Aging Cohort Study from 1999-2003. We included hospitalizations for infections if a predetermined ICD-9 code was the first-listed discharge diagnosis; we excluded ICD-9 codes corresponding to opportunistic AIDS-defining illnesses. ICD-9 codes for specific diagnoses were grouped into 9 more general infectious syndromes. We employed Poisson survival analyses to determine the incidence of hospitalization for these nine infections; for each infection, we calculated incidence rate ratios to compare HIV+ to HIV- patients while controlling for baseline medical comorbidities.

Results: The overall study cohort was 98% male, 33% white, and 43% black; the mean age was 46 years. The most common comorbidities among both positives and controls were hypertension, alcohol abuse, and drug abuse. Of HIV+ patients at study enrollment, the mean CD4 cell count was 264 cells/mL and 54% were taking HAART. The most common infections requiring hospitalization in all patients were soft tissue infections (HIV- 3.01%; HIV+ 7.22%), infections of the urinary system (2.92%; 6.47%), septicemia (1.47%; 5.83%), and enteric infections (0.69%; 3.65%). All nine infections were significantly more common in HIV+ than HIV- patients. Adjusted ratios of the incidence rates (IRR) of each infection in HIV+ compared to HIV- patients varied; for meningitis, the IRR was 12.5, for enteric infections, 4.8, septicemia, 3.9, heart infections, 3.6, abdominal and rectal infections, 2.4, soft tissue infections, 2.3, infections of the urinary system 2.1, infection and inflammation related to prostheses, 2.1, and osteomyelitis, 1.9.

Conclusions: The burden of non-opportunistic infections in HIV+ patients is substantial in the HAART era. A wide range of such infections are significantly more incident in HIV+ patients compared to controls. Further description of the risk factors, epidemiology of pathogens, clinical presentation, and prognosis of these infections is warranted.