Comparison of Survival among HIV-Infected and Noninfected People in Denmark, 1995–2005

What is the problem and what is known about it so far?
Human immunodeficiency virus is the cause of AIDS, an illness that interferes with the body’s ability to fight infection and some types of cancer. Human immunodeficiency virus passes from person to person through contact with blood or other body fluids that contain the virus. Treatments containing multiple drugs have dramatically improved health outcomes for HIV-infected patients. These treatments are known as HAART (highly active antiretroviral therapy). Before the availability and widespread use of HAART, people with AIDS usually died of an infection or cancer related to HIV infection. With HAART, fewer people with AIDS succumb to these conditions. They live longer now than in earlier years when HAART was not available, and many people eventually die of causes unrelated to HIV infection.

Why did the researchers do this particular study?
To compare the survival of people with HIV infection with those without HIV infection over the past decade during which HAART became standard care for HIV infection.

Who was studied?
3,990 HIV-infected patients in a large study of HIV infection in Denmark. The authors matched each HIV-infected patient with up to 99 noninfected people in the general population to assemble a group of 379,872 population controls. The controls had the same sex, date of birth, and geographic residence as the HIV-infected patient to which they were matched. Of note, unlike the United States, Denmark provides treatment with HAART free of charge to citizens with HIV infection.

How was the study done?
Using the Danish National Death Registry, the researchers collected information on date of death (if death occurred) through May 2005 for HIV-infected patients and population controls. Using this information, they estimated the average number of years that a person lived beyond age 25 years. They compared survival for HIV-infected patients and controls in 3 periods of different HAART availability: before HAART (1995 to 1996), early HAART (1997 to 1999), and standard HAART (2000 to 2005).

What did the researchers find?
Overall, during 1995 to 2005, HIV-infected patients lived about 20 years beyond age 25 compared with about 51 years for the general population. However, during 2000 to 2005 when HAART had become standard treatment, patients with HIV lived about 33 years beyond age 25 years.

What were the limitations of the study?
The results might not apply to countries that do not make HAART widely available to any citizen with HIV infection. Because HAART has only been available for about 10 years, the study was unable to determine whether the benefits would be similar for people who used HAART for longer than 10 years.

What are the implications of the study?
The life expectancy of a young person diagnosed with HIV infection is much longer now than it was before HAART became standard treatment. However, people with HIV infection still have a shorter life expectancy than do people in the general population, so we need more effective treatments.