B.C. researchers explore life expectancy among HIV-positive people

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In the 20\textsuperscript{th} century, life expectancy increased in Canada and other high-income countries thanks to improvements in medicine, better living conditions and so on. These changes have led some researchers to focus on something called health-adjusted life expectancy: exploring the number of years a person can expect to live in good and bad health and taking into account age-related illness, death and disability.

Among many HIV-positive people in Canada and other high-income countries there has been a very significant average increase in life expectancy since the introduction of potent combination anti-HIV therapy (ART) in 1996. However, some HIV-positive people, even if they use ART, will not have near-normal life expectancy because of problems largely unrelated to HIV infection, including the following:

- smoking
- substance use
- unrecognized, untreated or poorly managed mental health issues
- co-infection with hepatitis B virus (HBV) and/or hepatitis C virus (HCV)

Researchers at the British Columbia Centre for Excellence in HIV/AIDS working in collaboration with other researchers in Canada and the U.S. recently conducted an analysis on health-related information collected from about 9,000 HIV-positive people and 510,000 HIV-negative people. They found that, overall, while HIV-positive people had increased life expectancy since 1996, it was substantially less than that of the average HIV-negative person of the same gender. Furthermore, HIV-positive women in B.C. had reduced life expectancy compared to HIV-positive men. The researchers explored the major reasons for this diminishment in life expectancy found in their study and made some recommendations.

Study details

The research team reviewed data collected between April 1, 1996 and December 31, 2012 from people aged 20 years and older who were known to be HIV positive. All participants had been prescribed ART. In total, data were analysed from 9,310 HIV-positive people and 510,313 HIV-negative people. All participants in this study were residents of British Columbia.

The average profile of HIV-positive people upon entering the study was as follows:

- 83% men, 17% women
- age – 40 years
- length of time in the study – nine years

The average profile of HIV-negative people upon entering the study was as follows:

- 50% men, 50% women
- age – 36 years
- length of time in the study – 13 years

Results
During the course of the study, 21% of HIV-positive people died, as did 9% of HIV-negative people. This allowed researchers to calculate the life expectancy of people starting from age 20, as follows:

**Men**
- HIV positive – 34 additional years of life, for a total life expectancy of 54 years
- HIV negative – 61 additional years of life, for a total life expectancy of 81 years

**Women**
- HIV positive – 21 additional years of life, for a total life expectancy of 41 years
- HIV negative – 65 additional years of life, for a total life expectancy of 85 years

**Factors linked to ill health**

In general, many of the drivers of ill health in HIV-positive people in this study were linked to complications arising from chronic kidney and liver injury. According to the researchers, these co-existing illnesses, or comorbidities, among HIV-positive people resulted in substantial ill health “in the last few years of life.”

Among HIV-negative people, the main cause of ill health stemmed from cardiovascular disease. Researchers found that a similar “compression” of illness (in this case cardiovascular related) occurred among HIV-negative people toward the end of their lives.

Other researchers in Baltimore, Maryland, have found that HIV-positive people who have a history of injecting street drugs are at heightened risk for kidney- and liver-related health problems. In this population, liver-related injury can arise because of co-infection with hepatitis B and/or C virus and kidney-related injury can arise as complication of hepatitis C virus co-infection. In Canada today, the most common way that these viruses are spread is from exposure to contaminated equipment used for injecting street drugs.

Indeed, the B.C. researchers stated that the “substantial differences in health-adjusted life expectancy could be attributed to a history of injection drug use” among HIV-positive people in this study.

**Steps forward in viral co-infection treatment**

The B.C. researchers say that treating people who are co-infected with HBV and/or HCV with antiviral drugs “could” reduce the burden of illness caused by these viruses. They noted that pharmaceutical companies attach a high price to these medicines, particularly for HCV treatment, and, as a consequence, health authorities have restricted access to subsidized treatment over the past several years. However, the researchers acknowledged strides in B.C. to increase the number of HCV-positive people who receive care and treatment. In this regard, it is noteworthy that B.C. (together with the rest of Canada’s provinces and territories) is making progress in negotiating price reductions for HCV treatment. Furthermore, B.C. has recently announced plans to increase access to such medicines.

In their analysis, the B.C. researchers used many different databases to obtain health-related information about HIV-positive people. The various databases had overlapping information and could confirm findings captured in other databases. This reduced possible errors and resulted in a robust report by the researchers.

One potential drawback is that the B.C. researchers did not collect data about the mental health of participants. It is possible that mental health issues may have played a contributing role in decreased survival in a sizeable proportion of participants. Also, in the present analysis, researchers did not assess the ability of participants to take ART every day exactly as prescribed and directed (adherence) though they found poorer adherence among women in B.C. in a separate study. These factors likely also played a role in survival.

**What is to be done?**

The B.C. Centre’s data analysis shows that much work remains to be done when it comes to improving the health of HIV-positive people in that province, particularly women and people with comorbidities, including those struggling with addiction.

Other researchers who have reviewed the most recent analysis from B.C. noted that because of the general
weakening of the immune system caused by HIV, liver injury arising from hepatitis-causing viruses likely is accelerated. They therefore suggest that the initiation of ART earlier in the course of HIV disease would be one step toward helping preserve the immune system and perhaps reducing rates of liver injury in co-infected people.

As the price of HCV treatment falls to the level where health systems find it more affordable, hopefully more people will be offered testing for HCV infection followed by swift referral to care and treatment. Alongside such efforts to treat HCV, more investment is needed to help expand the foundation for a healthy society, including reducing engagement in substance use and offering screening for and treatment of mental health issues in populations that are susceptible to addiction and mental health issues.

Resources

Hepatitis C treatment and, some health issues in women with HIV in British Columbia

Improved access to hepatitis C treatment coming to B.C. and Ontario – CATIE News
CATIE's hepatitis C information
B.C. study finds women need help sticking to treatment – CATIE News
High rates of injury found among some HIV-positive people in B.C. – CATIE News

ART and survival

Impressive gains in survival for older people with HIV but still less than general population – CATIE News
What reduces survival 10 years after starting ART in North America and Europe? – TreatmentUpdate 217
Challenges in achieving a longer life – TreatmentUpdate 214
Longer life expectancy for HIV-positive people in North America – TreatmentUpdate 200
Exploring factors linked to longer survival among ART users – TreatmentUpdate 200
Long-term HIV infection and health-related quality of life – CATIE News
Swiss researchers investigate drug use and its impact on health and survival – CATIE News

Substance use and mental health

Canadian Mental Health Association
HIV and Emotional Wellness – CATIE’s guide to how people with HIV can cultivate their emotional well-being
Profile: Back from the Brink – The Positive Side (Fall 2016)
Ask the Experts: Addictions – The Positive Side (Fall 2016)
Study finds sustained-release dexamfetamine is promising for reducing cocaine use – CATIE News
Mental health, substance use and HIV – TreatmentUpdate 219
Schizophrenia and HIV—Study underscores serious issues associated with dual diagnoses – CATIE News
Pre-fix: A guide for people with Hep C or HIV who inject drugs
Prevention & Harm Reduction from Hepatitis C: An In-Depth Guide
Best Practice Recommendations for Canadian Harm Reduction Programs

—Sean R. Hosein

REFERENCES:


Disclaim

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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