

25 years of HIV/AIDS

In Canada today, living with HIV is the issue

by Dr. Harold Dion



Photo: Jake Peters

When otherwise healthy young people tested positive for HIV 11 years ago, they could assume they would succumb to AIDS before middle age. But highly effective new medications were coming onto the market. Today, these same people are alive and middle-aged, still in great shape, and making plans for the decade ahead. There is one thing, though...

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In industrialized countries such as Canada, human immunodeficiency virus (HIV) is no longer the killer it was during the 15 years after AIDS first appeared. For many people, HIV infection has now become a chronic disease.

But we shouldn't claim victory too soon. HIV/AIDS remains incurable. The AIDS epidemic is the deadliest ever for humankind, killing five million people worldwide in 2005 alone. Another 40 million people around the globe currently live with HIV. An estimated 55,000 Canadians have the virus: about 13,000 have died of AIDS since the beginning

of the epidemic. For those living with AIDS and the health professionals who care for them, every day is a journey into the unknown. The long-term success of treatments is uncertain and there are serious issues surrounding toxicity, adherence to treatment and resistance to antiretroviral medications.

Diagnosing a disease

On June 5, 1981, a bulletin from the US Centers for Disease Control published a report on an extremely rare form of pneumonia that had been found in five people whose immune systems were completely destroyed. That was the signal starting the sombre era of Acquired Immune Deficiency Syndrome or AIDS, as the deadly immune condition came to be known after 1982. Hundreds of thousands of other cases were rapidly diagnosed in the United States, and then in Africa, Western Europe, Haiti and Canada.

Progress in scientific research also gained momentum. In 1983, the virus responsible for AIDS was identified and subsequently named HIV for Human Immunodeficiency Virus. In 1985, the first blood test indicating the presence of HIV was approved, and the next year saw the launch of clinical trials of the first HIV medication, AZT or zidovudine. But the optimism of the scientific community was deflated when researchers discovered that HIV changed its genetic code with amazing speed and frequency — making it difficult to tackle with any lasting impact.

The next seven years were discouraging, to say the least. The virus ran rampant as science limped behind. Then, at the 1993 International AIDS Conference in Berlin, results from a clinical trial of a “dual” therapy combining two drugs, AZT and ddC (zalcitabine, Hivid®) or ddI (didanosine, Videx™), infused new hope in scientists and sufferers alike.

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In early 1996, research on the biology of HIV led to the creation of a new class of extremely powerful medications called protease inhibitors (protease is one of many enzymes the virus needs to replicate itself). Combined with AZT and the anti-retroviral agent 3TC (lamivudine) in a new “triple therapy,” these medicines brought spectacular results. In July 1996, American researcher Dr. David Ho predicted at the International AIDS Conference in Vancouver that a few years of treatment with triple therapy (also called highly active antiretroviral therapy or HAART) would eradicate HIV from the bodies of infected people. The idea behind HAART was to begin treatment as soon as the virus was identified and to use the most powerful medicines available. Starting the very next year, mortality dropped by more than 80% and the media began proclaiming “the end of AIDS.”

From cure to coping

A decade later, our dreams of eliminating the deadly virus have not yet come true. What we see instead are the limitations and adverse secondary effects of the treatments deployed against HIV, however highly effective they may be. One in every five people does not respond well to treatment, and HIV eventually

develops resistance to triple therapy in 30% of cases.

Usually, changing two of the three medications helps regain control over the disease. But the choices are not unlimited. There are strains of HIV that resist all drug combinations. And it's difficult for people living with HIV to stick to a rigid regimen that may last years and involve complex doses of pills and curbs on when and what you eat. Not taking medications the right way (the correct amounts in order and on time) is the cause of 50% of HIV cases that do not respond positively to triple therapy.

The battle against side effects

Each medication has a battery of side effects that often vary from one person to another. Some people are little affected, but others suffer side effects ranging from the minor and manageable (nausea, headaches, fatigue and diarrhea) to the chronic and severe (inflammation of the liver or pancreas, diabetes, high blood pressure, high cholesterol and hardening of the arteries). Interactions between different anti-HIV medications are also highly complex as they're metabolized together by the liver. Little is known about this process and it remains a cause for concern.

One troubling side effect that's becoming more common is lipodystrophy. This syndrome can involve a loss of body fat from the extremities — face, arms, buttocks and legs — giving people a gaunt appearance, with sunken cheeks andropy veins on the arms and legs, and/or an accumulation of fat around the internal organs in the middle of the body. The fat deposits don't diminish much with exercise or dieting. Many people find the sunken cheeks particularly disconcerting because even though they feel quite well with treatment, they start looking as though they're sick. Unfortunately, lipodystrophy is still not well understood.

Carefully forward

By 2001, a new attitude towards HIV treatment began taking hold. Its advocates believed the start of treatment should be delayed in most healthy HIV-positive patients because of the risks of early therapy. Treatment should begin only when symptoms of AIDS appear, or when the immune system is working at less than half its original capacity (as measured by counts of the CD4 cells that are depleted in HIV infection).

Since the start of 2006, several new anti-HIV medications have come onto the market. Others are waiting for approval and have a good chance of becoming available over the next few months. Many of these new medications show significant advances over existing drugs: they are stronger, easier to take, less toxic, and less likely to cause lipodystrophy or drug interactions. Fewer HIV strains are resistant to them.

Important moments in HIV

1981

First 5 cases of AIDS identified in the US

1983

Identification of the virus causing AIDS: Human Immunodeficiency Virus or HIV

1985

Approval of the first blood test for HIV

1986

Clinical trials on AZT, the first anti-HIV drug, begin

1993

Clinical study results on dual therapy (combination of 2 drugs)

1996

Discovery of a whole new class of medications, protease inhibitors (PIs), used in triple therapy (HAART) to great effect. Treatment trend is to hit hard and hit early

1997

Mortality drops by more than 80%

1998

Drug-resistant viral strains make their appearance, as do serious drug side effects

1999

Non-nucleoside reverse transcriptase inhibitors come on the market

2001

Trend begins to start treatment only after symptoms appear or immune function falls by half

2003

Fusion inhibitors come on the market

2004

Phase 3 clinical trials on second generation NNRTIs and second generation PIs

2005

Phase 3 clinical trials on CCR5 entry inhibitors

2006

Phase 3 clinical trials on integrase inhibitors

Transmitting HIV

As people living with HIV have become healthier and mortality levels have dropped, new challenges in controlling the spread of HIV have emerged. The generation of young people now starting their sexual lives tends to think of HIV/AIDS as part of the past, because fewer people now die from it. Prevention campaigns suffer as governments and social service agencies consider the disease a less imminent threat.

People who had no trouble practicing safe sex at the height of the crisis are now more willing to have unprotected sex. In the past five years there's been a significant increase in sexually transmitted infections like herpes simplex, gonorrhoea, chlamydia, human papillomavirus (genital warts), as well as a resurgence of older STDs like syphilis and venereal lymphogranuloma. Many of these increase the risk of HIV transmission during sex.



Photo: Jake Peters

Who's at risk today?

At the start of the AIDS epidemic, those most visibly affected in Canada were the gay community, Haitians and hemophiliacs. Today, HIV infiltrates different social groups indiscriminately. In the past few years, infection rates among women, as well as among intravenous drug users, have risen from 5% to 25%. Infection rates among gay men have dropped considerably, although there are signs that they may now be on an upswing.

Knowledge about how HIV is transmitted hasn't changed much over the years, though it has now been confirmed that oral transmission is possible, if extremely rare. The risk increases if sores are present in the mouth, if blood is in the saliva, or if genital secretions are swallowed.

Medicine for the future

There will be a continued need for new medications to keep up with mutations in HIV. Right now, new classes of antiretroviral medications to prevent HIV from entering the cells are being studied. Researchers are also looking at how to bring the virus out of hiding to be eradicated, as well as ways to improve the ability of cells to fend off HIV and ways to strengthen the immune system.

The prospect for a vaccine against HIV is distant because of the virus' ability to mutate endlessly. But astonishing improvements in treatment over the past few years have finally provided hope. An impressive number of resources are now being devoted to research on an effective vaccine. With the array of new medications coming out, we can't rule out the possibility of important breakthroughs in the next few years. **R**

HIV and AIDS in Canada

