Understanding pulmonary arterial hypertension

Although potent combination anti-HIV therapy (commonly called ART or HAART) is good at suppressing the production of HIV by infected cells, it does not cure HIV infection. Chronic HIV infection causes inflammation that is only partially suppressed by ART. Some researchers worry that prolonged inflammation incited by HIV may slowly degrade the health of the body’s organ-systems. This damage caused by chronic inflammation could lead to the intensification of pre-existing health problems or to the onset of new ones. It may, in part, explain the reason for the elevated risk of cardiovascular disease faced by HIV-positive people. Another problem that can occur among HIV-positive people that is probably related to inflammation is pulmonary arterial hypertension (PAH).

Origins

In the time before potent combination therapy for HIV became available, researchers noticed that some HIV-positive people developed PAH. Monkeys infected with simian immunodeficiency virus (SIV), which can cause an AIDS-like disease in susceptible animals, can also develop a PAH-like condition. Some researchers theorize that HIV-infected cells of the immune system that circulate within the lungs release chemical signals that cause inflammation in these organs, particularly in the main blood vessels that supply oxygen-rich blood to the heart. Yet, so far most HIV-positive people do not appear to get PAH.

Risks for PAH

Researchers do not know all the causes of PAH but have found that the following factors affect a person’s risk for developing it:

- gender – women are generally at greater risk for PAH than men, the precise reasons for this are not known
- stimulants – use of stimulants such as amphetamine, methamphetamine (crystal meth) and cocaine
- blood clots – people whose blood clots faster than normal
- genes – people whose parents or siblings have PAH

Symptoms

Initially, people with PAH may be symptom free. However, over time, PAH causes abnormalities in the arteries of the lungs, and so the following symptoms can develop:

- shortness of breath
- lack of energy
- chest pain
- swelling in the lower legs

According to surveys in the U.S., historically research suggests that less than 1% of HIV-positive people develop PAH. However, surveys in Western Europe have found greater rates of PAH among people with HIV. The reasons for this difference are not clear.

As part of the medical assessment of patients with potential PAH, a range of tests and procedures can be performed. Initially non-invasive tests may be used, such as an echocardiogram (also known as Doppler echocardiography). Although cardiograms may not yield precise measures of blood pressure within the lungs’ arteries, some doctors find them a useful first step before moving on to more invasive procedures.

Treatment

As part of recovery from symptoms of PAH, doctors may prescribe gentle exercise, such as walking. Changes to
the diet can also be helpful, such as lowering the intake of sodium. Treatment options for PAH can include the following:

- bosentan (Tracleer)
- ambrisentan (Volibris)
- sildenafil (Revatio)
- tadalafil (Adcirca)

Note that the last two drugs listed above have different brand names and doses when used for the treatment of erectile dysfunction.

In some cases, doctors may recommend heart surgery to maintain a person’s quality of life and stabilize the course of PAH until a heart or lung transplant can be performed.

**Resources:**

[How does pulmonary arterial hypertension (PAH) affect the heart and lungs?](#) - Pulmonary Hypertension Association of Canada

To learn more about pulmonary arterial hypertension, visit the [Pulmonary Hypertension Association of Canada](#) website

**REFERENCE:**

Disclaimer

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.

CATIE provides information resources to help people living with HIV and/or hepatitis C who wish to manage their own health care in partnership with their care providers. Information accessed through or published or provided by CATIE, however, is not to be considered medical advice. We do not recommend or advocate particular treatments and we urge users to consult as broad a range of sources as possible. We strongly urge users to consult with a qualified medical practitioner prior to undertaking any decision, use or action of a medical nature.

CATIE endeavours to provide the most up-to-date and accurate information at the time of publication. However, information changes and users are encouraged to ensure they have the most current information. Users relying solely on this information do so entirely at their own risk. Neither CATIE nor any of its partners or funders, nor any of their employees, directors, officers or volunteers may be held liable for damages of any kind that may result from the use or misuse of any such information. Any opinions expressed herein or in any article or publication accessed or published or provided by CATIE may not reflect the policies or opinions of CATIE or any partners or funders.

Information on safer drug use is presented as a public health service to help people make healthier choices to reduce the spread of HIV, viral hepatitis and other infections. It is not intended to encourage or promote the use or possession of illegal drugs.

Permission to Reproduce

This document is copyrighted. It may be reprinted and distributed in its entirety for non-commercial purposes without prior permission, but permission must be obtained to edit its content. The following credit must appear on any reprint: This information was provided by CATIE (the Canadian AIDS Treatment Information Exchange). For more information, contact CATIE at 1.800.263.1638.

© CATIE

Production of this content has been made possible through a financial contribution from the Public Health Agency of Canada.

Available online at: