Statins and vitamin D - an unusual relationship

Cholesterol-lowering medications, commonly called statins, are often prescribed by physicians for HIV-positive people. In general, when used correctly and in the right population, statins are generally safe, though they can sometimes affect the concentration of other medicines. In a minority of people who take statins, problems such as muscle weakness and pain can develop. Statins also have anti-inflammatory activity, which may aid in the ability of these drugs to help prevent heart attacks.

Observational studies have found associations between low levels of vitamin D in the blood and an increased risk for cardiovascular complications, including peripheral artery disease and heart attacks. However, because of built-in limitations, observational studies cannot prove that low levels of vitamin D are the cause of peripheral artery disease, heart attacks and other related complications. Still, some scientists remain intrigued by the potential of vitamin D in the area of cardiovascular health, perhaps for at least the following reasons:

- Cells lining blood vessels contain receptors for vitamin D. Exposure to this vitamin helps restrict the thickening of this lining. Such thickening would otherwise impede the flow of blood.
- Lab experiments have found that vitamin D can help reduce inflammation. Separate studies suggest that inflammation plays a role in accelerating cardiovascular disease.
- Vitamin D can very modestly help reduce blood pressure.

Researchers in several countries have conducted experiments with statins to assess their impact on vitamin D in HIV-negative people. Their findings suggest the following:

- Rosuvastatin (Crestor) can raise vitamin D levels about threefold in the blood.
- Atorvastatin (Lipitor) can have a similar effect on vitamin D as rosuvastatin.
- Other statins, such as lovastatin (Mevacor) and simvastatin (Zocor), can also increase the concentration of vitamin D in the blood.
- In contrast to the statins listed above, fluvastatin (Lescol) does not appear to raise vitamin D levels.

Small studies have found that vitamin D₃ supplements at a dose of 800 IU/day can lower levels of atorvastatin (by about 10%) and the chemicals into which it is broken down inside the body. Yet, despite these reduced levels of atorvastatin, the combination of vitamin D and atorvastatin appeared to have increased cholesterol-lowering activity more than either substance did alone.

In general, these studies exploring the impact of statins on vitamin D were small. Larger robust clinical trials will be needed to understand the complex ways in which statins and vitamin D might affect each other’s properties and actions.

—Sean R. Hosein

REFERENCES:


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.