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:


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