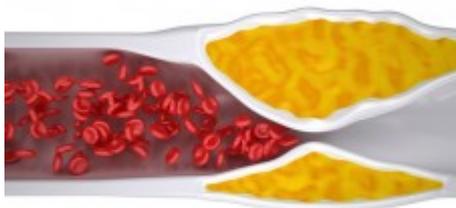


New Means of Heart Disease Prevention On the Horizon



By Ruth Kava — April 9, 2016



Artery blocked by atherosclerotic plaque via

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Cholesterol deposits in the arteries of the heart, or atherosclerosis, are major indices of current or impending heart disease/heart attacks. For many years, the preferred way of lowering blood cholesterol has been with the use of statin drugs, like Lipitor.

Statins inhibit the biosynthesis of cholesterol in the liver, which is responsible for about 80 percent of the total cholesterol in the body. But if a person already has significant cholesterol deposits, it is much more difficult to reverse them. Further, not everyone can take statins.

However, a study recently published in the journal *Science Translational Medicine* describes another drug that just might be able to do the trick. This compound is β -cyclodextrin (CD), a member of a group of compounds that have been used for years in many pharmaceutical applications to help with the absorption of various drugs. In particular, CDs act somewhat like detergents. They can make lipophilic molecules — those that won't dissolve in water, like cholesterol and oil — more able to do so.

One means by which this could affect atherosclerosis is by solubilizing the crystalline cholesterol that is part of the plaques deposited in arterial linings. Crystalline cholesterol doesn't only cause disease by physically blocking arteries. It is also one of the factors that initiate the inflammatory response that causes white blood cells, called macrophages, to accumulate in the area, which adds to the blockage.

As described in the paper, Dr. Eicke Latz of the German Center of Neurodegenerative Diseases in Bonn, Germany, and an international team of researchers, treated mice with atherosclerosis with cyclodextrin. They found that the compound dissolved cholesterol crystals from arterial plaques and decreased the size of the plaques. While a successful mouse study does not necessarily translate into a successful human treatment, in this case we should know if it does more quickly

than usual.

This is because cyclodextrin has been successfully used in pharmaceutical applications for years. The FDA has already stated that it is safe for human use. Further, under compassionate use regulations, the drug is already being tested in people who have a rare genetic disorder called Niemann-Pick Type C (NPC) disease. This disorder results in accumulation of cholesterol in cells and makes it unavailable for its normal uses in the body. Interestingly, the idea of using cyclodextrin for atherosclerosis came from parents of children with NPC. These kids are being treated with cyclodextrin on an experimental basis to see if it could normalize their cholesterol metabolism.

Hopefully, cyclodextrin will be useful in ameliorating the effects of this genetic disorder, and will also benefit people with atherosclerosis. Having another effective means of preventing or treating atherosclerosis to add to the current medical armamentarium would always be welcome.

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