



Michigan State University research reveals effectiveness of statins in preventing heart attack, stroke

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March 26, 2007, EAST LANSING, Mich. — Research by a Michigan State University cardiologist finds that a class of drugs known as statins not only help to lower cholesterol levels, but also can play a major role in lessening the damage – and even saving lives – from heart attacks, strokes and other cardiovascular events.

The work of George Abela, a professor in MSU's Department of Medicine and chief of the department's cardiology section, finds that statins help to reduce the crystallization of cholesterol in an artery. It is this crystallization that damages the artery – literally poking holes in it – and kick starts the body's natural clotting process which can lead to dangerous, if not fatal, clots.

“When a person is having a heart attack, one of the first things we do is reach for an aspirin,” Abela said. “But this research is pointing in the direction that maybe we should also be reaching for this medication as well, because it reduces these crystals at the time of an acute event.”

Abela presented the research today at the annual meeting of the American College of Cardiology in New Orleans.

It's long been known that statins are helpful in lowering the lipids in the bloodstream. Lipids are any fat or fat-like substance found in the blood, including cholesterol. What wasn't understood, Abela said, is that the statins actually begin their work before the lipid levels drop.

“They were thought to be anti-inflammatory. And they are,” he said. “But what causes the inflammation? It's most likely the puncturing of the artery by the cholesterol crystals that causes the inflammation.”

Earlier research by Abela and colleagues found that heart attacks and strokes occur when cholesterol, which has built up on the wall of an artery, crystallizes from a liquid to a solid state, expands and bursts, sending material into the bloodstream. It is the presence of this material, as well as damage to an artery, that put the body's natural defense mechanism – clotting – into action.

“The clotting system is reacting to an injury to the artery,” Abela said. “Once a rupture or erosion of the surface of the artery occurs, then the clotting system is activated to do its job.”

In their research, Abela and colleagues found that statins prevented the expansion and crystallization of cholesterol both in vitro and in arteries taken from patients who died of acute heart attacks.

“When cholesterol crystallizes, it can sometimes increase its volume by as much as 45 percent,” he said. “What we found is the statins significantly reduce, if not completely eliminate, that expansion.”

Abela said this will change the way these drugs are used, especially for patients who are suffering heart attacks.

“If it reduces the crystals at the time of an event,” he said, “then it could be reducing the damage to the artery and the heart at the same time.”

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