

MRIs could become powerful tools for monitoring cholesterol therapy

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MRI scanning could become a powerful new tool for assessing how well cholesterol drugs are working, according to Loyola University Health System cardiologist Binh An P. Phan, MD.

Phan is co-author of an MRI study of patients who had recently begun taking cholesterol medications. The study found that intensive treatment with [cholesterol drugs](#) significantly reduced the amount of cholesterol in artery-clogging plaque. The study is published in the *Journal of the American College of Cardiology*: [Cardiovascular Imaging](#).

Cholesterol is the raw material in the buildup of plaque, which leads to atherosclerosis (hardening of the arteries). The process can cause blocked arteries that can trigger heart attacks, strokes and other [cardiovascular problems](#).

[Imaging technologies](#) traditionally used to monitor cardiovascular disease, such as [angiograms](#) and ultrasounds, show the overall size of the [plaque buildup](#). In the new study, MRI scans were more precise, showing the amount of cholesterol within the plaque.

The study was conducted at the University of Washington, where Phan completed a cardiovascular clinical and research fellowship. The study included 120 patients who were randomly assigned to receive one of three cholesterol treatments: Lipitor®; Lipitor plus Niaspan® (extended-release niacin); or Lipitor® plus Niaspan and colesevelam.

After three years, the 33 patients with identified carotid plaques had a significant reduction in the cholesterol within the plaque. The volume of cholesterol dropped from 60.4 cubic millimeters to 37.4 millimeters, and the percentage of plaque volume consisting of cholesterol dropped from 14.2 percent to 7.4 percent.

(The scans were done on patients' carotid arteries in the neck, rather than on their coronary arteries. Carotid arteries are easier to image because they are closer to the surface of the body, and do not move as much as coronary arteries of a beating heart. Since atherosclerosis occurs in blood vessels throughout the body, plaque buildup in carotid arteries is a good representation of what is occurring in coronary arteries.)

The findings confirmed the researchers' hypothesis that the reason why cholesterol medications shrink the overall size of the plaque is because cholesterol is being removed from within the plaque. Thus, using MRI scans to monitor the amount of cholesterol in plaque may help doctors to better determine how well cholesterol medications are working. If an MRI showed cholesterol was not being reduced, more aggressive therapy might be needed, Phan said.

"In the future, [MRI scans](#) may become important and powerful tools to see how medication therapy is working inside arteries," Phan said.

"However, our study is just the first step. Additional studies will be needed."

Provided by Loyola University Health System

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