

# Olive oil emulsion helps with problem heart arteries

18 December 2006

An emulsion of olive oil, egg yolk and glycerine might be just the recipe to keep heart patients away from the operating room and cardiac bypass surgery.

That's the finding of a study to be published in the January issue of the journal *Catheterization and Cardiovascular Interventions* led by Michael Savage, M.D., director, Cardiac Catheterization Laboratory at Thomas Jefferson University Hospital, Philadelphia.

The mixture is not swallowed, Dr. Savage explains. Rather, it is used in the Cardiac Catheterization Laboratory to bathe surgical stents before they are inserted into problem heart arteries.

Since being introduced in 1994, stents--the metal mesh tubes placed in a coronary artery to keep it open after an interventional procedure--have worked in the majority of patients.

Coated or drug-eluting stents, which prevented restenosis (the re-closing of the artery a short time after stent insertion) were the next advance in this field.

"There are still a small number of patients with arteries that cannot be stented because of anatomic obstacles," said Dr. Savage, who is also associate professor of Medicine, Jefferson Medical College of Thomas Jefferson University.

Tortuosity is one such obstacle. It occurs when there are extreme bends in the vessels leading to or from the heart artery which taxes the limited flexibility of stainless steel stents. Dr. Savage likens attempting to place a stent through a tortuous vessel to "trying to move a couch around a narrow stairwell." Other obstacles are calcification, which hardens bones, and diffuse plaque, which can make the vessels too rigid for effective stent delivery.

"Patients in whom stents cannot be placed are at high risk of abrupt re-closure of the artery which could lead to life-threatening complications such as heart attack or emergency bypass surgery," Dr. Savage says.

The cardiologists tested the emulsion in a group of 15 men and five women between the ages of 60 and 80. These patients had abnormal arteries that were oddly shaped or winding or had particularly tight blockages--and could not be stented. After failed conventional attempts to insert stents, the Jefferson physicians were able to place the lubricated stents successfully in 17 (85 percent) of these patients with no negative effects months after the procedure.

The lubrication used was RotaGlide, an emulsion originally designed to reduce catheter friction during other cardiovascular procedures.

Composed primarily of olive oil, egg yolk phospholipids, glycerin, sodium hydroxide and water, it is commercially available as a sterile solution. The only contraindication to use of the product is known allergy to any of the ingredients.

To address unresolved issues about biocompatibility with the often-used drug-eluting stents, the researchers studied additional patients for a longer follow-up period. None of the patients who received the drug-eluting stents developed blood clots or restenosis.

"We found that this emulsion is a safe, simple and effective aid for stent delivery in the rare cases where stents could not previously be inserted," Dr. Savage said. "It would be a worthwhile addition to the interventionalists' bag of tricks."

Source: Thomas Jefferson University

APA citation: Olive oil emulsion helps with problem heart arteries (2006, December 18) retrieved 25 June 2021 from <https://medicalxpress.com/news/2006-12-olive-oil-emulsion-problem-heart.html>

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