

Research shows fish oil may protect against stroke from ruptured carotid artery plaques

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Research led by Hernan A. Bazan, MD, Assistant Professor of Surgery, Section of Vascular Surgery, at LSU Health Sciences Center New Orleans School of Medicine, has found that unstable carotid artery plaques - those in danger of rupturing and leading to a stroke - contain more inflammation and significantly less omega-3 fatty acids than asymptomatic plaques. This suggests that increasing the levels of omega-3 fatty acids in carotid artery plaques could either prevent strokes or improve the safety of treatment. This may be accomplished by increasing dietary intake of foods rich in omega-3 fatty acids.

The study is an Article in Press in the journal, *Vascular Pharmacology*, currently online.

Our bodies produce only a small amount of <u>omega-3 fatty acids</u>, so most of what we need has to come from eating omega-3 fatty acid-rich foods like fish (salmon, tuna, trout, herring, etc.) or from supplements. Omega-3 fatty acids have been shown to protect against cardiovascular disease, particularly heart attack and <u>sudden cardiac death</u>. Dr. Bazan's team wanted to determine what the association might be with plaques in the carotid arteries, a common cause of strokes. Vulnerable plaques which can rupture in the carotid arteries may lead to transient ischemic attacks (TIAs), strokes, or vision loss by affecting the artery to the retina. The mechanisms leading to plaque rupture are still not fully understood but inflammation within the plaque is beginning to be recognized as an important cause of plaque rupture.



Dr. Bazan, an LSUHSC vascular/endovascular surgeon, in collaboration with researchers at Yale University and others at LSUHSC, analyzed plaques from 41 patients who underwent carotid endarterectomy (CEA) to remove plaque buildup in their arteries. Twenty-four patients were asymptomatic and 17 were symptomatic, having had neurological symptoms. All of the fats in the plaques were assessed with <u>mass</u> spectrometry, in collaboration with Dr. Song Hong at LSUHSC. The team was measuring the amounts of docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) - the components of long-chain omega-3 polyunsaturated fatty acids. The plaques of asymptomatic patients, and about one and a half times as much EPA. Significantly less inflammation was also seen in the carotid atherosclerotic plaques from asymptomatic patients.

"In the future, a study to address whether supplementation with dietary omega-3 polyunsaturated <u>fatty acids</u> prevents carotid-related events in patients with moderate or high-grade carotid stenosis will help answer whether this is a formidable therapeutic target for the prevention of stroke," says Dr. Bazan.

According to the Centers for Disease Control and Prevention, stroke is the third leading cause of death in the United States, as well as a leading cause of serious long-term disability. About 795,000 strokes occur in the US each year and about 610,000 of these are first, or new, strokes. About 185,000 occur in people who have already had a stroke. Nearly 25% of strokes occur in people under the age of 65. Of all ischemic strokes occurring, <u>carotid artery</u> atherosclerotic plaques account for over a third of them. It has been noted for several decades that the southeastern United States has the highest stroke mortality in the country. It is not completely clear what factors might contribute to the higher incidence and mortality from stroke in this region.



Source: Louisiana State University Health Sciences Center

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