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New study suggests combination of statin and omega-3 fatty acid may provide cardioprotective effects

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New findings from an in vitro study, led by researchers at Brigham and Women's Hospital (BWH), show that the combination of statins and eicosapentaenoic acid (EPA), an omega-3 fatty acid, may potentially reduce cardiovascular risk. This research is being presented May 1 at a peer-reviewed poster session at the National Lipid Association Scientific Sessions in Orlando, Florida.

"We know that endothelial cell dysfunction is emerging as an early and important predictor of cardiovascular disease and plays an essential role in plaque development. Treatments that provide beneficial effects on endothelial function could have very important implications for a patient population at high risk for heart disease," said R. Preston Mason, PhD, of BWH's Department of Medicine and lead author of the study. "We found that a combination of statins and EPA omega-3 fatty acid, or fish oil, had beneficial effects on endothelial cells and function."

Using human tissue, researchers analyzed whether EPA could enhance the benefits of statins on endothelial cells. Blood vessels from human umbilical vein cells were collected from healthy donors and then subjected to disease-like conditions in the laboratory using oxidized low-density lipoproteins (LDL). Using nanotechnology approaches, researchers measured the release of molecules from the endothelial cells including nitric oxide, an essential regulator of blood vessel health. The researchers found that the combination of EPA and a statin was more

than 50 percent better than the statin alone in reversing endothelial damage.

Researchers conclude that there is a potent and favorable interaction between the omega-3 fatty acid, EPA, and widely used statins, and suggest that a therapeutic strategy with this combination may be beneficial patients with increased risk for CV disease.

These new results may also underscore the importance of coupling high-quality statin therapies with an omega-3 agent such as EPA in potentially reducing cardiovascular risk, in addition to treating elevated triglycerides. High circulating triglyceride levels are considered a risk factor associated with cardiovascular disease, along with HDL, LDL cholesterol and blood pressure. New strategies to help patients manage this aspect of cardiovascular risk show promise in the overall prevention and treatment of heart disease.

The researchers note that future research is needed, particularly in humans, including cardiovascular outcomes data in randomized clinical trials.

Provided by Brigham and Women's Hospital