

HEALTH

Technion researchers find that vitamin E can help diabetics avoid heart attacks

By Judy Siegel-Itzkovich November 22, 2007

Researchers at the Technion-Israel Institute of Technology and Clalit Health Services have discovered that taking vitamin E supplements could reduce the risk of heart attacks and stroke in type II diabetics who carry a specific version of a gene.

Dr. Andrew Levy, of the Technion's Rappaport Faculty of Medicine, who made the discovery with colleagues, delivered a lecture on it at the American Heart Association meetings in Orlando, Florida earlier this month, and the full study was published Wednesday on the online edition of the journal *Arteriosclerosis, Thrombosis, and Vascular Biology*.

There are an estimated 20.8 million Americans with diabetes according to the National Diabetes Information Clearinghouse (NDIC), most of them with the type II form. Of this an estimated 6.2 million have not yet been diagnosed.

The study showed that after 18 months of treatment, those diabetics with the haptoglobin (Hp) 2-2 gene who took 400 International Units (IU) of vitamin E daily had more than 50 percent fewer heart attacks, strokes and related deaths than Hp 2-2 patients who took a placebo pill. About two-fifths of type II diabetics carry the Hp 2-2 gene.

In the group of 1,434 Hp 2-2 individuals taking part in the study, seven people had a heart attack, compared to 17 of the subjects who did not take the vitamin.

Levy said there were no side effects observed in patients who took vitamin E. The study suggests that genetic testing for the Hp 2-2 gene "may be useful to identify a large group of diabetics who could potentially derive cardiovascular benefit from a very inexpensive treatment," Levy said.

The finding is a new answer to an old question: can antioxidant vitamins such as vitamin E help prevent heart disease? In the past, cardiologists routinely prescribed vitamin E for their patients, but the practice has dwindled as several major studies in the past decade showed no heart-protective effects and potential harm from vitamin E megadoses.

However, Levy and his colleagues suspected that there might be one group of patients who

could benefit from vitamin E: diabetics with the Hp 2-2 variant of the haptoglobin gene. Haptoglobin is a powerful antioxidant protein that stabilizes the iron-rich red blood cell molecule called hemoglobin, preventing inflammation in the walls of arteries.

There are several versions of the haptoglobin gene. In previous studies, Levy and colleagues showed that Hp 2-2 is an inferior antioxidant compared to its genetic siblings and that this difference is exaggerated in patients with diabetes. The researchers also discovered that diabetic patients with Hp 2-2 are two to three times more likely than other diabetics to suffer a cardiovascular event.

"This version of the gene does not determine whether or not an individual will develop diabetes but rather whether an individual with diabetes is susceptible to developing the devastating complications associated with diabetes such as heart disease, kidney disease or visual loss," Levy noted.

A genetic test for Hp 2-2 is commercially available, said Levy, who is also a consultant for Synvista Therapeutics, which owns a patent on the use of Hp testing to predict diabetic complications. By making a kit, the group hopes to considerably lower the price of testing. According to Levy, the test would cost about \$30 and would only have to be done once.

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