DGDispatch

EASD: Simvastatin Protects against Endothelial Dysfunction in Type 2 Diabetes

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BUDAPEST, HUNGARY -- September 5, 2002 -- Simvastatin minimises oxidative stress and endothelial dysfunction brought on by the cumulative effects of postprandial hypertriglyceridaemia and hyperglycaemia seen in type 2 diabetics.

The findings were presented here September 4th at the 38th annual meeting of the European Association for the Study of Diabetes (EASD).

According to the researchers, from University of Udine, Azienda Ospedaliera S. Maria della Misericordia, and Morpurgo-Hofman Research Laboratory on Aging, all in Udine, Italy, postprandial hypertriglyceridaemia and hyperglycaemia are considered risk factors for cardiovascular disease and may induce endothelial dysfunction. However, their distinct role remains to be determined.

In an effort to investigate the effects of simvastatin on endothelial function, the researchers enrolled 30 type 2 diabetic patients and 20 healthy individuals to treatment with either simvastatin 40 mg/day or placebo. Immediately before starting treatment; three to six days after; and 12 weeks after beginning treatment, patients were given three different meals: 1) a

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high-fat meal; 2) 75 g glucose alone; 3) a high-fat meal plus glucose.

The results showed that glucose alone, as well as the high-fat meal, produced a decrease of endothelial function and an increase of nytrotyrosine (NT) from one to three hours after the meal in normal subjects ($p<0.001$ vs. baseline) and from one to four hours after the meal in diabetic patients ($p<0.001$ vs. baseline).

In all subjects, the combination of high-fat and glucose load produced greater decreases in flow-mediated dilatation (FMD) and increases of NT ($p<0.001$ vs. baseline) than with either nutrient taken alone ($p<0.01$). Short-term simvastatin treatment had no effect on lipid parameters, but reduced the effects on endothelial function and NT during the tests.

"Our research demonstrates that both postprandial hyperglycaemia and hypertriglyceridaemia can produce endothelial dysfunction and generate oxidative stress, and that the overall effects of both are independent and cumulative," said Dr. Antonio Ceriello, one of the study's co-authors. "From a clinical point of view, this means that both postprandial hyperglycaemia and hypertriglyceridaemia should be controlled," he added.

He also pointed out that, according to this study, postprandial hyperglycaemia by itself is a damaging factor, but its effects are compounded by the concomitant presence of hypertriglyceridaemia, which is very common in diabetic patients.

"Moreover, our study shows that statin treatment counterbalances the effect of both postprandial hyperglycaemia and hypertriglyceridaemia, and that this effect is not related to the lipid lowering effect of the compound," he said.

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