Aspirin enhances platelet isoprostanes in type 2 diabetes

23 March 2012

For patients with type 2 diabetes mellitus who are treated with aspirin, isoprostanes are overproduced, which is linked with enhanced platelet recruitment, according to a study published online March 16 in *Diabetes*.

(HealthDay) -- For patients with type 2 diabetes mellitus (T2DM) who are treated with aspirin, isoprostanes are overproduced, which is linked with enhanced platelet recruitment, according to a study published online March 16 in *Diabetes*.

Noting that aspirin has a modest influence on cardiovascular events in T2DM, Roberto Cangemi, M.D., Ph.D., from the Sapienza University of Rome, and colleagues investigated the effect of aspirin on platelet isoprostanes in patients with T2DM. Fifty aspirin-treated and 50 untreated T2DM patients were compared with 100 patients without diabetes, matched for age, gender, atherosclerosis risk factors, and aspirin treatment. In 36 aspirin-free patients, with and without diabetes, a seven-day treatment with aspirin was performed.

The researchers found that in patients with diabetes versus those without, and in aspirin-treated versus untreated diabetes patients, higher platelet recruitment, platelet isoprostane, and activation of the catalytic subunit of reduced NAD phosphate oxidase (NOX2) were seen. In all aspirin-treated patients, platelet thromboxane (Tx) A_2 was inhibited. In those with and without diabetes, aspirin inhibited platelet TxA_2 similarly in the interventional study. A parallel increase was seen in platelet recruitment, isoprostane levels, and NOX2 activation in patients with diabetes, whereas no change was seen in those without diabetes.

"We provide evidence that, in T2DM patients, low-dose aspirin enhances platelet isoprostanes as a consequence of NOX2-generated reactive oxidant species upregulation," the authors write. "This effect mitigates the antiplatelet effect of aspirin and may account for its lower clinical efficacy in T2DM compared with other atherosclerotic settings."

More information: Abstract
Full Text (subscription or payment may be required)