

Bivalirudin versus heparin in patients planned for coronary stenting

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Bivalirudin and heparin are two anticoagulant options for patients undergoing coronary stenting for ischemic heart disease. Bivalirudin, a newer anticoagulant, has been touted as being as effective as generic heparin, but with nearly half the rate of bleeding. However, several studies have hinted that, compared with heparin, bivalirudin-based regimens might not protect as well against recurrent heart attacks and might increase the risk of stents clotting off. Moreover, newer studies have questioned whether the reduction in bleeding holds up when tested on more modern background therapy. Researchers from Brigham and Women's Hospital (BWH) conducted an analysis of all of the previous trials to date to better define both the benefits and risks of the competing anticoagulants. They found that, compared with heparin-based regimens, bivalirudin-based regimens increased the risk of heart attack and stent thrombosis. Bivalirudin-based regimens decreased the risk of bleeding, but by how much depended on whether other blood thinners were used more with heparin than with bivalirudin.

These findings are published in *The Lancet* on August 15, 2014.

"Our study found that using a [bivalirudin](#)-based regimen increased the risk of major adverse cardiac events by nine percent. This risk was largely driven by an increased risk of heart attack and recurrent angina requiring further coronary stenting. There was also more than a four-fold increase in the risk of [stent thrombosis](#) in the first 24 hours in patients having a large [heart attack](#) who were treated with emergency stenting," explained Matthew Cavender, MD, MPH, an interventional fellow in

BWH's Cardiovascular Division, senior research fellow in the TIMI Study Group and first author of this study. "Bivalirudin-based regimens lowered the risk of bleeding, but the magnitude of benefit was attenuated when glycoprotein IIb/IIIa inhibitor (GPI) use was similar in the two arms."

To help better define the benefits and risks of these two anticoagulants, researchers from BWH pooled data from 16 trials involving nearly 34,000 patients. They compared the effects of bivalirudin-based regimens with heparin-based regimens on ischemic and bleeding outcomes through 30 days.

"It can be challenging to wade through the seemingly disparate data in the literature. These findings should help clinicians make a more informed decision when selecting an [anticoagulant](#) to support coronary stenting in different types of patients by weighing the trade-offs between risks of thrombotic and bleeding complications," stated Marc S. Sabatine, MD, MPH, a senior physician in BWH's Cardiovascular Division, chairman of the TIMI Study Group and senior author of this study.

The researchers note that more work is needed to investigate specific strategies to minimize thrombotic complications during [percutaneous coronary intervention](#), without substantially increasing the risk of bleeding.

Provided by Brigham and Women's Hospital

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