

Individualized treatment duration of blood thinning drugs after heart stent procedures

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Nearly 1 million people in the United States receive coronary artery stents each year. Nearly all stent patients are expected to take dual antiplatelet therapy (DAPT) using the combination of aspirin and a second antiplatelet medication to prevent the formation of blood clots. Exactly how long patients should receive DAPT has been debatable.

A study led by researchers at Beth Israel Deaconess Medical Center, Brigham and Women's Hospital and Harvard Clinical Research Institute (HCRI), published today in the *Journal of the American Medical Association (JAMA)*, describes a new tool that may help clinicians provide their patients more personalized treatment strategies. Known as the DAPT Score, the risk score provides individualized assessment of the risks and benefits of prescribing DAPT beyond one year in patients who have received stents for the treatment of cardiac blockages, based on a patient's specific risk factors. The study findings were first presented at the American Heart Association Scientific Sessions this past November.

"Dual antiplatelet therapy is standard for patients following coronary stent procedures, but we haven't had good tools to help us determine how long we should be treating individual patients," explained lead author Robert W. Yeh, MD, MSc, Director of the Smith Center for Outcomes Research in Cardiology at Beth Israel Deaconess Medical Center and Associate Professor of Medicine at Harvard Medical School.

The authors developed the tool using a novel method to analyze data

from a randomized trial of more than 11,000 percutaneous coronary intervention (PCI) patients that demonstrated an overall lower risk of heart attacks and stent thrombosis ([blood clots](#)) but a higher risk of bleeding when the therapy was extended beyond one year.

"While these results reflected the average treatment effects observed in the population, some patients derived greater benefit from longer treatment through reduction in heart attacks, while others were harmed from bleeding," said Yeh, who is also an interventional cardiologist at the CardioVascular Institute at BIDMC and Medical Director of Trial Design at HCRI. "Our goal was to create a tool that could help clinicians identify those patients who really benefit from longer treatment, as well as those for whom stopping treatment at a year would be preferred."

"Antiplatelet therapy has both benefits and risks, and the benefit of the medication depends on whether a patient has a higher risk of [heart attack](#) or a higher risk of bleeding," said Laura Mauri, MD, MSc, Director of Clinical Biometrics at Brigham and Women's Hospital, Professor of Medicine at Harvard Medical School and Principal Investigator of The DAPT Study, an international clinical trial conducted and analyzed by HCRI. Mauri is also Chief Scientific Adviser at HCRI.

"Figuring this out in the clinic is difficult, because each patient is complex and many have risk factors for both types of problems," she added. "The DAPT Score was developed to help with this challenging decision, in an effort to help guide and personalize treatment for those patients who are most likely to be helped by continuing the medication and avoid it in those who might be more likely to have serious bleeding. Similar methods could be used in the future to take randomized trial results and tailor them better to individual patients."

The risk calculator (available at <http://www.daptstudy.org/for-clinicians/calchome.htm>) assigns individual patients a numerical score

(-2 to 10), based on factors related to patient age, prior cardiovascular [risk factors](#) and procedural characteristics. The authors found that the continuation of DAPT beyond one year for those patients with scores of 2 or more was eight times more likely to prevent a heart attack than cause bleeding. However, for patients with scores lower than 2, continuation of treatment beyond one year was more than twice as likely to cause a bleed than prevent a heart attack.

"There's been so much confusion about how long we should be treating patients with blood thinners after getting stents," said Yeh. "We haven't prospectively validated the use of the score, and it's only applicable to [patients](#) similar to those who were randomized in The DAPT Study, so we still need to be cautious. Nevertheless, we think it represents a significant step forward in understanding benefits and risks of [treatment](#)."

Provided by Beth Israel Deaconess Medical Center

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