Complications in patients undergoing percutaneous coronary intervention tend to occur within first 30 days

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Percutaneous coronary intervention (PCI), also known as coronary angioplasty or angioplasty, is a procedure used to treat acute coronary syndromes. PCI involves opening a blocked blood vessel by threading and inflating a balloon-tipped tube into the vessel. Sometimes a stent is also inserted to keep the blood vessel open.

While undergoing PCI treatment, doctors usually give patients medicine to prevent complications that may occur from the procedure.

In a new study by researchers at Brigham and Women's Hospital (BWH), types and timing of cardiovascular disease and heart attack (CVD/MI) complications were tracked in patients undergoing PCI after an acute coronary syndrome and taking medications to prevent these complications.

The study is being presented at the American College of Cardiology 2012 Annual Scientific Session, March 24 to 26 in Chicago.

Utilizing patients from the TRITON-TIMI 38 study, researchers examined 12,844 patients who had at least one stent and were randomized to receive either the anti-blood clotting drugs prasugrel (Effient) or clopidogrel (Plavix). These drugs work by blocking activation of platelets (a component in blood involved in clotting).

The researchers observed the patients over a median follow-up of 14.5 months.

Researchers classified CVD/MI events under three categories: stent thrombosis (when a blood clot forms in the stent), procedural-related (in the setting of PCI or bypass surgery), or spontaneous (not related to stents nor procedures, but indicating a thrombosis in a different artery than the one that caused the first acute coronary syndrome event).

There were 1,306 CVD/MI events. 186 (14 percent) were stent thrombosis-related, 606 (46 percent) were procedural-related, and 514 (40 percent) were spontaneous.

Of the 1,306 events, 846 (65 percent) occurred within the first 30 days after the PCI. Of these 846 events, the most common were procedural-related events (584, 69 percent). A total of 126 (14.9 percent) were stent thrombosis-related, and 136 (16.1 percent) were spontaneous.

For events occurring after 30 days, the majority were spontaneous (383, 81.2 percent), followed by stent thrombosis-related (63, 13.5 percent), and procedural-related (22, 4.7 percent).

CVD/MI events that occurred within the first 30 days tended to be stent thrombosis-related and procedural-related. Spontaneous CVD/MI events occurred more often in the later phase (more than 30 days after PCI).

When comparing the two drugs in the study, prasugrel reduced the incidence of CVD/MI in each event category, both early and late, with the benefit most marked among stent thrombosis-related events.

The researchers concluded that more potent anti-blood clotting drugs directly reduces complications from PCI, as well as preventing the formation of new, symptomatic thrombotic lesions in other arteries.

"These data from TRITON-TIMI 38 provide clinicians with new information regarding the timing and benefit of more potent anti-platelet agents following PCI for an acute coronary syndrome," said Benjamin Scirica, MD, MPH, BWH Cardiovascular Division, Department of Medicine, and lead study author. "It reminds us that these agents are not only preventing stent-related complications, which tend to occur early after PCI, but are also preventing the formation of new, spontaneous, thrombotic lesions throughout the coronary artery tree."

Provided by Brigham and Women's Hospital

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