Commentary: Better late than never!

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Central Message

Ticagrelor plus aspirin shows faster onset of action and a higher peak of platelet inhibition compared with clopidogrel and aspirin, which leads to better outcomes in patients with CABG.

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There is evidence that patients undergoing coronary artery bypass graft (CABG) procedure have increased platelet activity, becoming hypercoagulable during the postoperative period¹ and showing a significant increase of spontaneous platelet aggregation and platelet hyperactivity to antiplatelet dual therapy. This can be due to substantial changes in platelet messenger RNA before versus after cardiopulmonary bypass, with consequent messenger RNA protein expression level alterations that cause platelet defect after cardiopulmonary bypass.² This prothrombotic state is increased to higher levels during the first 24 hours after surgery³ and can last as late as 30 days after surgery.⁴ The use of an antiplatelet agent, such as aspirin, either before and immediately after surgery, was an attempt to reduce the consequences of a problem that could lead to occlusion of grafts, mainly venous. It was demonstrated that aspirin reduces early mortality and incidence of acute myocardial infarction⁵ and improves patency rate after CABG.⁶ Aspirin, however, has some drawbacks. There is transient impairment in its antiplatelet effect after CABG related to increased platelet turnover caused by the inflammatory process. This could be responsible for the high risk of occlusive thrombosis.⁷ Moreover, around 50% of patients show reduced postoperative responsiveness to aspirin⁸ and reduced platelet reactivity has been demonstrated to be a risk factor for recurrent cardiovascular events during follow-up.⁹ The addition of clopidogrel produced better results in terms of venous graft patency rate,¹⁰ but clopidogrel—a prodrug—has some limitations and was demonstrated to be ineffective in close to 30% of patients,¹¹ limiting the benefit of dual antiplatelet therapy. Finally, the benefit of ticagrelor plus aspirin was shown in a randomized trial that reported improved patency rate of venous grafts.¹² Similar results were reported by a smaller randomized trial comparing ticagrelor plus aspirin to clopidogrel plus aspirin.¹³ Xu and colleagues¹⁴ demonstrate that the basis of a better outcomes in patients treated with ticagrelor plus aspirin are faster onset of action and a higher peak of platelet inhibition compared with clopidogrel plus aspirin.

Since the beginning of CABG procedures, surgeons have focused on the technical aspects of the anastomoses and on the strategy of grafting, paying little attention to the influence of an adverse biological environment on the graft itself. Instead, cardiologists tried to fight the biological response to the foreign material deployed into the coronary artery, achieving progressively greater results. It is time to realize that coronary surgery is not only an artistic issue; that is, performing a perfect anastomosis is not the entire equation, but only part of it. Finally, we are moving in the right direction. Better late than never!

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