See Article page e457.

Commentary: *Staphylococcus aureus*, the master of disaster in intracardiac prosthetic infective endocarditis, on a new battlefield with antiplatelet agents

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In this issue of the *Journal*, Ditkowski and colleagues¹ report their in vitro investigation of the potential role of antiplatelet therapy in diminishing thrombocyte-mediated *Staphylococcus aureus* tissue valve or conduit heterograft infective endocarditis. Although a wide range of bacteria can cause cardiac prosthetic endocarditis, infections resulting from *S aureus* colonization are the most common perioperative finding and are also associated with a severe clinical course, including increased morbidity and mortality. In addition to its aggressive microbiologic characteristics, this bacterium expresses surface molecules to mediate its binding to endothelial cells and thrombocytes and also activates platelets. All these cumulative abilities may reduce the host's intrinsic immunologic defense mechanisms and result in bacterial colonization of endothelial surfaces.²

Ditkowski and colleagues¹ have reviewed several antiplatelet agents in an experimental setting of a laminar flow medium, including aspirin, ticagrelor, and eptifibatide. The effective reduction of bacterial adhesion was demonstrated despite the diverse pharmacologic profiles of these molecules, which highlights a common end point of action,

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CENTRAL MESSAGE

Antiplatelet agents are key elements in prevention of thromboembolism from implanted foreign materials in the bloodstream and also play a crucial role in lowering risk of infective endocarditis.

the inhibitory effect on thrombocyte aggregation. Some of these drugs have an additional antimicrobial action, as revealed by Lancellotti and associates³ in the context of ticagrelor therapy. Unfortunately, Ditkowski and colleagues¹ were not able to evaluate one of the most common antiplatelet drugs, clopidogrel, in their in vitro model, because clopidogrel itself is ineffective without in vivo metabolism.

With progressive aging of the population, a higher number of patients receive surgical or transcatheter intracardiac implants every year. The octogenarians are posing a technical challenge not only because of the frail tissues and higher calcium burden of their cardiac structures, but because the immune response is also inversely proportional to the aging process, making these patients more prone to infections. Even at younger ages, low-grade bacteremia may lead to infective endocarditis after common daily oral hygiene activities,⁴ which emphasizes the potential additional beneficial effect of antiplatelet treatment in intracardiac implant carriers.

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