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REPLY: True Fractional Flow Reserve of Left Main Coronary Artery Stenosis in the Presence of Downstream Coronary Stenoses

We would like to thank Dr. Saito for his interest in our study (1) evaluating the influence of a downstream epicardial stenosis on the fractional flow reserve measurement of an intermediate left main stenosis with the pressure wire positioned in the nondiseased contralateral vessel. We agree with Dr. Saito that the findings are in accordance with mathematical equations like the one he proposes and the one we have previously published, which demonstrated our understanding of the background mechanism (2). Unfortunately, these equations and the even more complex one proposed for the case in which both downstream vessels are diseased suffer from the major limitation that they assume the microvascular resistance in each downstream vessel. Moreover, as was the case with the equations proposed for evaluating the individual fractional flow reserve values of serial stenoses (3,4), their complexity makes it unlikely that a practicing interventional cardiologist will apply them clinically. We are pleased that Dr. Saito's letter highlights the practical message of our paper, that the effect of downstream epicardial disease on the functional assessment of intermediate left main disease with the pressure wire in the nondiseased downstream epicardial vessel is small and clinically irrelevant, unless the downstream disease is severe.

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The Role of Drug-Eluting Balloons in Bifurcations

The Remaining Variable to Fit the Perfect Equation

We have read with great interest and satisfaction the elegant paper written by Kim et al. (1) and the editorial by Abdel-Latif et al. (2); we want to congratulate the authors on the original design of these 2 trials. As occurs with chronic total occlusions and left main disease, bifurcation lesions represent a constantly debated issue in all the meetings of Interventional Cardiology, and despite the large number of trials and the different techniques tested, there still exist unresolved aspects in the treatment of this subset of patients. To date, none of the dedicated stent platforms has shown relevant advantages over the conventional drug-eluting stents (DES) because of their higher profile, the complexity of utilization, or the need for additional stents, and although there is a general agreement supported by previous trials that provisional stenting is the best choice, there is still significant heterogeneity, and different techniques are widely used, such as crush, T-stenting, modified T-stenting, culotte, and a large list of the mentioned dedicated stents and techniques. The data provided by these 2 trials with 54% of second-generation DES in the CROSS (Choice Of Optimal Strategy For Bifurcation Lesions With Normal Side Branch) and 37% in the PERFECT (Optimal Stenting Strategy For True Bifurcation Lesions) trials show us the best paths to face against these challenging lesions in the following years. Second-generation stents have