

Letter by Sen et al Regarding Article, “Diagnostic Accuracy of Combined Intracoronary Pressure and Flow Velocity Information During Baseline Conditions: Adenosine-Free Assessment of Functional Coronary Lesion Severity”

To the Editor:

We read with great interest the study by van de Hoef et al¹ demonstrating the ability of the hyperemia-free Basal Stenosis Resistance index to detect ischemia.

This is the second study in recent months to report that the hemodynamic significance of a coronary stenosis can be assessed without the administration of potent vasodilators.² We believe that this is a highly significant observation, which may lead to a paradigm shift reversing the a priori perceived wisdom that maximal hyperemia is required for physiologic stenosis assessment. Review of the literature shows that these observations are not without scientific founding. Some of the earliest works of Gould demonstrated that although it is possible to use vasodilators to unmask transstenotic pressure gradients, even in the basal resting state there is a marked divergence in pressure gradients among mild, moderate, and severe coronary stenoses.³ Therefore, providing the tools are of adequate sensitivity it should be possible to identify small differences in pressure gradients to differentiate between stenoses of different severity.

We note that Basal Stenosis Resistance has a level of agreement with noninvasive assessment similar to that of fractional flow reserve. However, the level of agreement remains below that of the hyperemic stenosis resistance index. Could this reflect discrepancies in underlying flow velocity between the 2 indices? If so, we wonder whether, rather than using the entire cardiac cycle, the degree of classification with noninvasive assessment could be improved still further by looking over the wave-free period in diastole. During this period, flow is intrinsically higher than mean flow over the complete cardiac cycle and intracoronary pressure is not confounded by the active phases of myocardial contraction and relaxation.^{2,3}

We believe that the limited clinical adoption of intracoronary physiology, despite the wealth of outcome data, justifies considering the value of vasodilator-free indices for the assessment of coronary stenoses.^{4,5} We, therefore, welcome Basal Stenosis Resistance as a novel index that circumvents vasodilator administration, thereby

facilitating the application of physiologically guided revascularization in a wider patient population.

Disclosures

None.

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