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“Comparison of Clinical Interpretation With Visual Assessment and Quantitative Coronary Angiography in Patients Undergoing Percutaneous Coronary Intervention in Contemporary Practice: The Assessing Angiography (A2) Project”

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We appreciate the concerns raised by Drs Khandelwal and Kern about our recent analysis of the visual assessment of angiographic stenosis among percutaneous coronary intervention (PCI)-treated lesions in contemporary practice.¹ In sum, their concerns involve the admittedly imperfect nature of quantitative coronary angiography (QCA), which they suggest should not be used as a tool for clinical assessments in the catheterization laboratory. We agree that QCA has limitations (and noted many of their points in our Discussion). In particular, we specifically acknowledged that QCA 'as it is currently used' does not account for many factors that should influence clinical decisions on revascularization.

Nonetheless, we do believe that QCA, as an unbiased and highly reliable technique, may help quality improvement efforts by identifying (and perhaps narrowing) gaps in performance related to visual assessment. This was the overarching goal of our study, and we believe our findings strongly suggest a need to improve visual assessment. Despite several previous studies that have demonstrated deficiencies with visual assessment over the last several decades, there has been no concerted effort by the cardiology community to address extensive interobserver and intraoperator variability in the interpretation of coronary angiography. Indeed, the fact that we found significant differences across hospitals in how visual assessments compared with QCA suggests that factors other than random variability are at play. Because challenges with visual assessment in clinical practice still exist, they need to be explored and should be addressed with innovative solutions because the implications for clinical care are substantial.

Both Dr Khandelwal and Dr Kern argue for assessment of the functional significance of lesions using tools like fractional flow reserve (FFR) as the better approach. We agree with this, both conceptually and in practice, and mentioned the importance of this tool in our

Discussion. However, the use of FFR in our study cohort was rare, which indicates the continued reliance on visual assessment in current practice. Contemporary data from the American College of Cardiology–National Cardiovascular Data Registry CathPCI Registry also indicate that use of FFR in elective PCI is uncommon.² In fact, as we wrote in our article, we believe that feedback and educational initiatives about visual assessment through tools like QCA may actually “enhance clinical decision making on the need for further testing (eg, FFR) before PCI.”¹ We also believe that even with the widespread adoption of tools for physiological assessment of lesions like FFR, accurate visual assessment of coronary anatomy by cardiologists remains a fundamental skill required for performing coronary angiography. And we need to ensure that cardiologists are good at it.

Finally, it is important to emphasize that we are not advocating for the implementation of QCA as a way to replace clinical decision making by cardiologists. Instead, we are interested in improving the interpretation of angiograms through visual assessment and in this study have used QCA to assess the performance of this routine task in contemporary practice. From the results of our study, we believe that feedback through QCA may be one strategy to help cardiologists improve their visual assessments and, along with other key clinical factors, improve clinical decisions and ultimately patient care.

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