Response to Letter Regarding Article, “Collateral Donor Artery Physiology and the Influence of a Chronic Total Occlusion on Fractional Flow Reserve”

We appreciate the interest and comments from Dr Saito on our article. It is gratifying that some of the findings of their in vitro work have been borne out by our results. Many of their comments have already been addressed in the article. We agree that the mass of collateral dependent myocardium and extent of collateralization are likely to be important factors in the extent of change in donor vessel fractional flow reserve (FFR) in this setting. Our sample size was calculated to demonstrate a significant change in collateral donor vessel FFR; to assess all predictive factors, a much larger study would indeed be required.

The verification in human subjects of in vitro results is important. Although our own results are largely in agreement with those in the article by Watanabe et al, quoted by Dr Saito, we did not demonstrate a consistent increase in collateral donor vessel FFR in all patients as their model predicted. The only other published systematic assessment of this phenomenon did not either. Interestingly, the case presented in the article by Watanabe et al involved a large increase in the FFR of an left anterior descending artery from 0.81 to 0.93 after recanalization of a chronically occluded right coronary artery. At this initial FFR value, the reported change is larger than predicted both by our own study and Dr Saito’s study, where the postrecanalization FFR was predicted to be 0.89. This may simply be explained by measurement variability; it perhaps provides an example of selective reporting to exaggerate the magnitude of the phenomenon. A value of clinical studies like our own over in vitro models is that they put individual case reports such as this in context and provide a more reliable estimate of effect size and variability.

Disclosures

None.

Andrew Ladwiniec, MA, MRCP
Michael S. Cunnington, BMedSci, MD, MRCP
Jennifer Rossington, BSc, MRCP
Adam N. Mather, BMedSci, MD, MRCP

Albert Alahmar, MRCP
Richard M. Oliver, DM, FRCP
Department of Cardiology
Castle Hill Hospital
Kingston-upon-Hull, United Kingdom

Sukhjinder S. Nijjer, MRCP
Justin E. Davies, PhD, MRCP
International Centre for Circulatory Health
National Heart and Lung Institute
Imperial College London
London, United Kingdom

Simon Thackray, MD, MRCP
Farquad Alamgir, MRCP
Angela Hoye, MRCP, PhD
Department of Cardiology
Castle Hill Hospital
Kingston-upon-Hull, United Kingdom

References


Response to Letter Regarding Article, "Collateral Donor Artery Physiology and the Influence of a Chronic Total Occlusion on Fractional Flow Reserve"
Andrew Ladwiniec, Michael S. Cunnington, Jennifer Rossington, Adam N. Mather, Albert Alahmar, Richard M. Oliver, Sukhjinder S. Nijjer, Justin E. Davies, Simon Thackray, Farquad Alamgir and Angela Ho ye