98. Comparative Analysis of Instantaneous Wave-Free Ratio and Quantitative Real-Time Myocardial Contrast Echocardiography For Assessment of the Myocardial Perfusion

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Body

Background: The field of coronary physiology is rapidly evolving, and changing the practice of interventional cardiology. A new functional assessment technique - the instantaneous wave-free ratio (iFR) - has emerged as an alternative to fractional flow reserve (FFR). Future studies are required to determine whether there is a role for physiological indices to assess the myocardial perfusion in catheterization room.

Methods: Thirty-eight patients scheduled for coronary angiography (CAG) and iFR underwent Real-Time Myocardial Contrast Echocardiography (RT-MCE) at rest, and the observing indexes included the images of RT-MCE that were analyzed quantitatively from microbubble replenishment curves for myocardial perfusion by using the Q-Lab software. Coronary angiography and iFR was performed within 1 week after RT-MCE in all patients. Correlation analysis was used to evaluate iFR and MCE related indicators. The sensitivity and specificity of iFR for quantitative detection of coronary microcirculation were obtained.

Results: The correlation coefficient between iFR and A, β and A × β is 0.81, 0.66 and 0.82. The cutoff for iFR were 0.85 for detection of myocardial microcirculation ischemia, and the sensitivity and specificity of iFR for detection of myocardial perfusion were 90.7% and 89.9% respectively. The ROC curve area of iFR was 0.946 in the segments relative to myocardial blood flow.

Conclusion: The iFR is an effective method for the detection of myocardial microcirculation perfusion. The iFR had a reasonable diagnostic performance and a role for physiological indices to assess myocardial microcirculation perfusion.
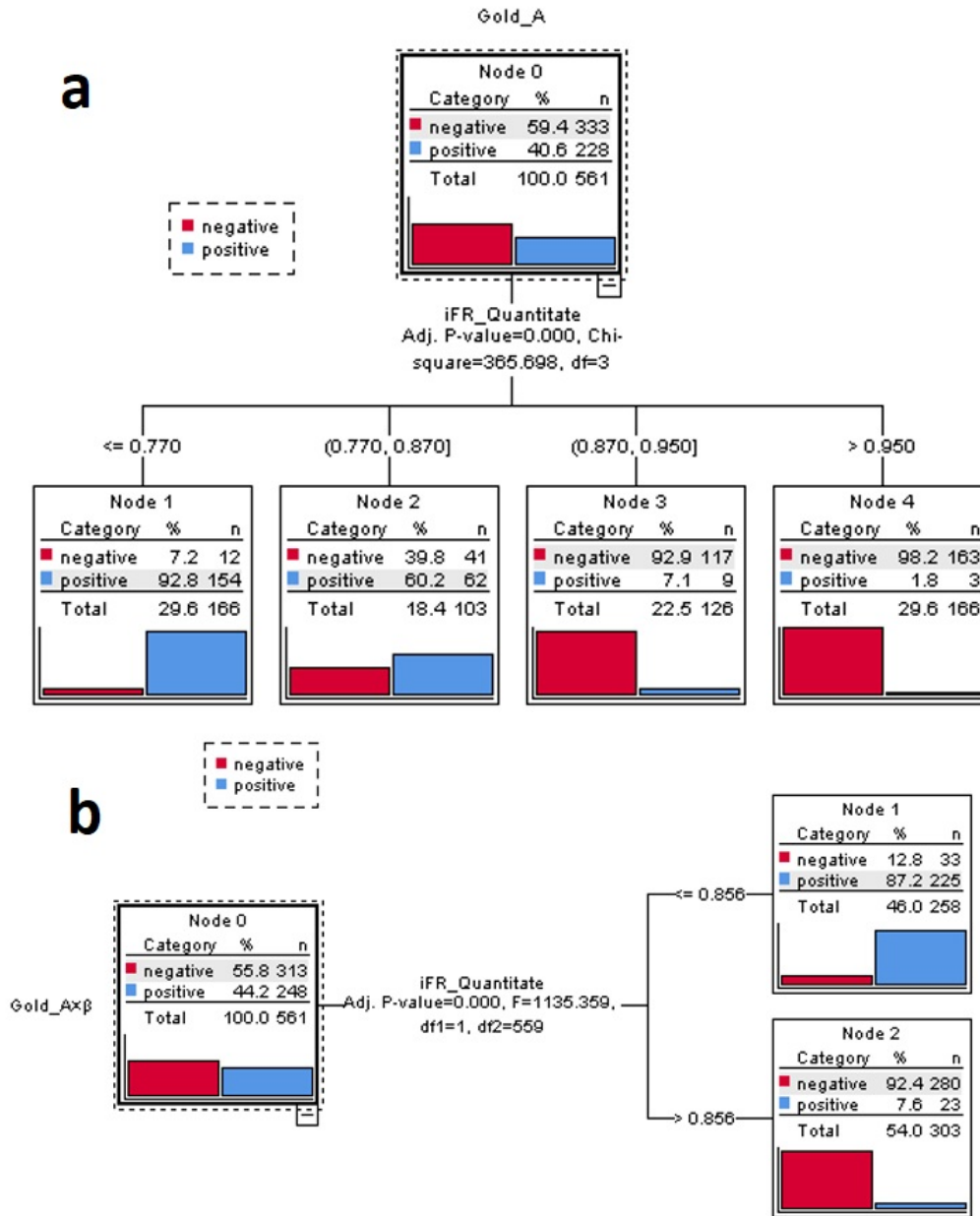
Figue 3. a: The 0.77, 0.87 and 0.95 node can be found by using decision tree analysis and A<4.58 as the cut-off point of myocardial blood volume reduction. b: The 0.856 **node can be found by using decision tree analysis and Axβ<2.75** as the cut-off point of myocardial blood flow reduction.

Clinical Implications: The purpose of this study was to explore the correlation between coronary physiological indexes used in catheter room and myocardial ischemia