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Intra-Coronary Sinus Echocardiography: A New Approach to Guide Cardiac Interventional Procedures

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Background: Intracardiac echocardiography (ICE) is routinely used to guide interventional procedures. The purpose of this study was to determine if ICE in the coronary sinus (CS) could provide a new perspective of highly detailed cardiac anatomy.

Methods: In 9 patients, a phased array intracardiac ultrasound catheter (AcuNav, Siemens Mountainview CA) was used for imaging within the coronary sinus. The catheter was advanced into the great cardiac vein, near the take off of the anterior interventricular vein, and a pull back was performed with atrial and ventricular imaging. Images obtained by transesophageal echocardiography (TEE) and CS ICE were compared.

Results: The left atrial appendage, pulmonary veins, mitral valve chordae, papillary muscles, aortic valve, the proximal left, left circumflex, and right coronary arteries were successfully visualized with clarity equal to that of TEE. Intra-cardiac catheters were also successfully visualized in the right ventricle, right atrium, and left atrium. The right coronary artery, lateral wall of the left ventricle, and the aortic root and the mitral valve structures (scallops/closure line) were better seen with CS ICE. There were no complications due to the use of the ICE catheter in the coronary sinus. **Conclusions:** Intra-coronary sinus imaging with an ultrasound catheter is safe and provides highly detailed images to identify structures that are hard to visualize by TEE and has the potential to be an alternative to TEE for valvular interventions.

Diagnostic Testing

