Coronary Sinus Cannulation during Cardiac Resynchronization Therapy with a Hydrophilic Guidewire, Amplatz Coronary Catheter, or Multi-electrode Catheter

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Introduction: Localization of the coronary sinus (CS) ostium and establishment of a stable platform in the coronary sinus are essential for successful cardiac resynchronization therapy (CRT). Angiographic (contrast-guided) or electrophysiologic (electrogram-guided) approaches have been used for CS cannulation. The success rate of CS cannulation using a hydrophilic guidewire is unknown.

Methods: We evaluated 102 consecutive patients who underwent cardiac resynchronization therapy between September 2013 and June 2019. We analyzed the success and complication rates of CS cannulation using a nitinol hydrophilic guidewire, Amplatz coronary catheter, or multi-electrode catheter.

Result: The electrophysiologic approach was successful in cannulating the CS in 10 of the 102 patients. Cannulation using a hydrophilic guidewire initially was successful in 65 (70.7%) of 92 patients. CS cannulation was successful using a multi-electrode catheter in 7 and an Amplatz coronary catheter in 16 of 27 patients. Of the remaining 4 patients, 3 had successful CS cannulation using a multi-electrode catheter. CS cannulation was unsuccessful in 1 patient. Coronary sinus dissection occurred in 2 of 21 cases with and 1 of 81 cases without using a multi-electrode catheter. LV lead implantation was successful in 3 cases with CS dissection.

Conclusion: CS cannulation using a hydrophilic guidewire was effective and safe. Selective use of an Amplatz coronary catheter or multi-electrode catheter can further improve the success rate.