Advanced Technology for Coronary Sinus Lead Insertion -- PARASTERNAL CORONARY SINUS CANNULA

Published date: Feb. 17, 2012

Technology description

Problem or Unmet Need:
Congestive heart failure is an expanding epidemic, with more than 500,000 new cases each year. Cardiac resynchronization therapy (CRT) is effective in many of these patients, but cannulation of the coronary sinus (CS), a critical step for lead insertion, is technically difficult and fails in 5-10% of attempts. The inventors developed techniques that could expedite lead insertion while reducing patient discomfort, length and difficulty of the procedure, failure rates, complications, and costs. Our primary objective is to develop cannula for right parasternal mediastinotomy (RPSM) for locating and cannulation the CS. CS cannulation is a common maneuver during open-heart surgery, routinely accomplished in less than a minute. Similar facility cannulation the CS from an RPSM would importantly expedite and advance CRT.
Details of the Invention:
This invention describes new equipment and an improved methodology for CS cannulation for CRT. The invention is tear-away introducers and customized LV leads. The cannula will incorporate appropriately curved, malleable obturators, and a variety of sensors to aid in localizing the CS. These sensors will include echocardiographic imaging and pressure sensors.

Application area

This technology facilitates:
-- CRT in patients who fail standard endocardial approaches
-- CRT in patients who are high risk candidates for thoracotomy because of intrathoracic adhesions
-- CRT in all patients who can undergo general anesthesia

Advantages

Relative to other pacing technologies, this invention affords:
-- Increase speed and dependability of CS cannulation

-- Reduced risk of bleeding complications compared to standard thoracotomy
-- Ability to rapidly exchange pacing leads of varying size and shape
-- Reduced risk of dislodgement during lead insertion and removal of cannula system

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