Assessment of Right Ventricular Function Using Contrast Echocardiography

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Technology description

Summary
Vanderbilt Medical Center researchers have developed a non-invasive and reproducible method of assessing right-ventricular function using contrast-echocardiography. The right-ventricular transit time (RVTT) measures the time needed for echocardiographic contrast to travel from the RV to the bifurcation of the main pulmonary artery. Coupled with the pulmonary transit time (PTT), the time needed for contrast to traverse the entire pulmonary circulation, RVTT is part of a family of diagnostic parameters that can report on RV-specific performance as well as the RV’ s function relative to that of the pulmonary circuit as a whole.
Background
Quantification of RV function is vital to the diagnosis and treatment of cardiopulmonary disorders in a myriad of circumstances including heart failure, pulmonary hypertension, prior to cardiac surgery, and in the evaluation for ventricular assist devices/heart transplantation. However, existing methods of RV functional assessment are, in the aggregate, limited by availability, cost, image quality, and contraindications in certain medical conditions.

Advantages

Contrast echocardiography is non-invasive, relatively inexpensive, widely available, portable, and conducive to serial measurements (i.e. to assess response to treatment of RV function.
Potential for incorporation into a variety of echocardiographic platforms.
Unlike cardiac MRI, there are no contraindications for patients with renal dysfunction or pacemakers, defibrillators, and other implantable devices.
Potential for real-time output in graphical or numeric format without off-line post-processing

Institution

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