# Contrast echocardiography clinical application

Teguh Santoso Sukamto, author



---

Abstrak

ABSTRACT<br>
Atrial septal defect is one of the most common forms of congenital heart disease. Although various M-mode and two-dimensional echocardiographic characteristics of atrial septal defect have been described, these criteria lack sensitivity and specificity. By allowing visualization of blood flow, the demonstration of right-toleft or left-to-right shunting is possible with contrast echocardiography(11-16). The purpose of the first part of this study was to verify the utility of this technique for evaluating patients with atrial septal defect. We observed that contrast echocardiographic shunts may persist long after closure of an atrial septal defect. The aim of the second part of' this study was to determine whether this indicates unsuccessful repair or a hemodynamically important residual shunt.

Peripheral venous injection of echocardiographic contrast allows the visualization of blood flow through the right sided cardiac cavities. The purpose of the third part of the study was to determine whether the technique may aid to the diagnosis of some right heart abnormalities by the demonstration of specific blood flow patterns.

The patterns of echo contrast appearance in the inferior vena cava after upper extremity injection may be related to right heart hemodynamics(17,18). The purpose of the fourth part of the study was to determine the utility of contrast echocardiography of the inferior vena cava for the assessment of right heart hemodynamics. Since the technique can be used to detect tricuspid regurgitation( 9-21), we also studied whether estimation of its severity is possible,. because this would have important therapeutic and prognostic implications.

An intriguing potential .future application of contrast echocardiography is the study of myocardial perfusion. The technique would offer many advantages over the other imaging modalities such as radionuclide techniques, contrast-enhanced computerized transmission tomography, positron emission tomography and nuclear magnetic resonance. Contrast echocardiographic. myocardial perfusion imaging would have a good spatial and temporal resolution and allows direct and simultaneous assessment of both the perfusion and function of the myocardium. It is also much less expensive. However, a good and safe echocardiographic contrast agent for such application in humans is not yet available.