Title

Permalink
https://escholarship.org/uc/item/79p8x143

Journal
Echocardiography (Mount Kisco, N.Y.), 32(9)

ISSN
0742-2822

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Publication Date
2015-09-01

DOI
10.1111/echo.13021

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Peer reviewed
LETTER TO THE EDITOR


Dear Editor,

We read with interest the article “Patent Foramen Ovale (PFO) and Atrial Septal Defect (ASD)” by Hari et al. The article is a review describing the anatomy and embryology of the atrial septum and the diagnosis of PFO and ASD using echocardiography. The authors mention the importance of transesophageal echocardiography (TEE) in visualizing the atrial septal anatomy, measuring the degree of right-to-left shunting (RLS), and determining the type and size of the closure device preprocedure. For the readers of Echocardiography, we would like to provide additional information on the accuracy, optimal protocol, advantages, and limitations of the different imaging modalities that are commonly used for the diagnosis of intracardiac RLS.

Transcranial Doppler (TCD) bubble study may be preferable for detecting RLS due to its low cost, high accuracy, and noninvasive nature. TCD indirectly assesses for a RLS by injection of agitated saline contrast and detection of bubbles after a provocation maneuver through insonation of the middle cerebral arteries. When compared to TEE, TCD has a sensitivity of 97% but a lower specificity of 93% likely due to its inability to differentiate between cardiac and pulmonary RLS. A recent review observed that using different contrast agents, changing the timing and type of provocation maneuvers and insonating unilateral versus bilateral middle cerebral arteries did not affect the accuracy of TCD for detecting RLS. However, increasing the microembolic threshold for a positive TCD to 30 microbubbles significantly improves the specificity of TCD without compromising sensitivity compared to the diagnosis of PFO by heart catheterization.

As Hari et al mentioned, TEE is essential for visualizing the atrial septal anatomy, measuring RLS severity and determining the type and size of a potential closure device. However, 10% of PFOs may still be missed with TEE. A recent meta-analysis comparing the diagnostic accuracy of TEE to confirmation by autopsy, cardiac surgery, and/or cardiac catheterization demonstrated TEE to have a sensitivity of 89% and specificity of 91%. TEE has the limitation of being time-consuming, uncomfortable for the patient, and has a low risk of esophageal bleeding or perforation.

We recommend utilizing TCD as an initial screening test with TEE used as a subsequent confirmatory test. In stroke patients, TEE is still essential for the diagnosis of other etiologies of stroke including an intracardiac thrombus and to assess the left atrial appendage or the presence of aortic disease.

Disclosures:
Dr. Tobis is a consultant for St. Jude Medical, Inc. and W.L. Gore, Inc. No funding was provided to write this letter. Dr. Mojadidi has no disclosures.
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