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Abstract W MP65: Accuracy of Two-Dimensional Echocardiography using Second Harmonic Imaging for the Diagnosis of Intracardiac Right-to-Left Shunt: A Meta-Analysis of Prospective Studies

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Abstract

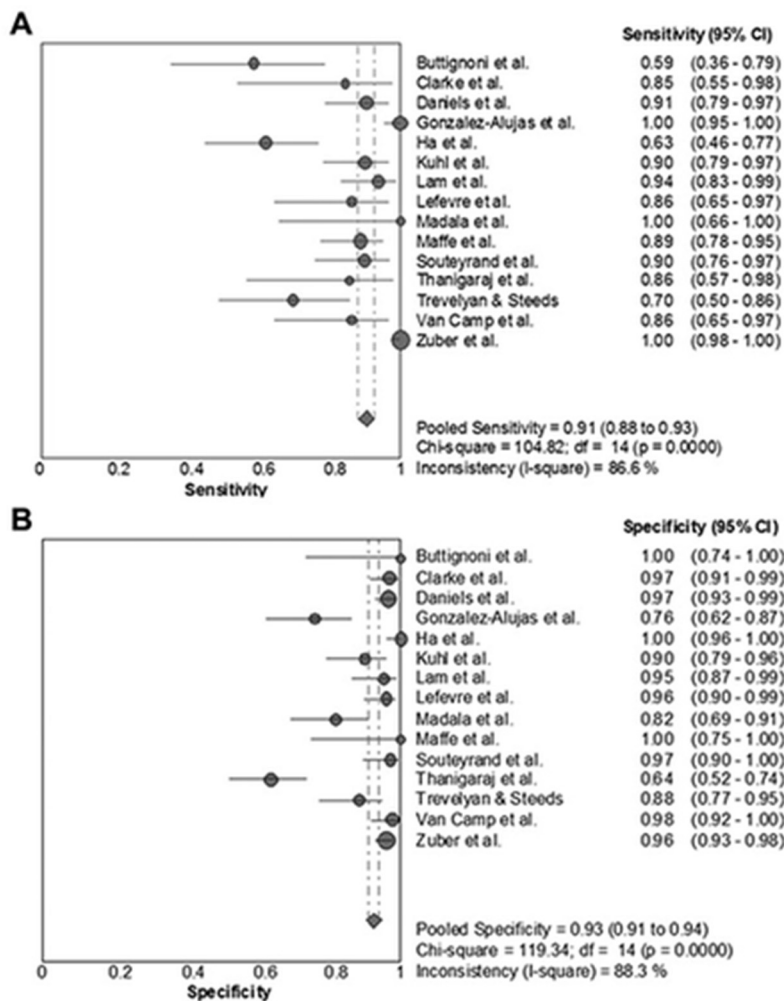
Background: Right-to-left shunting (RLS), often through a patent foramen ovale (PFO), has been associated with cryptogenic stroke, migraine with aura, and hypoxemia. With emerging observational studies and clinical trials on the subject of PFO and its association with stroke and migraine, there is a need for accurate diagnosis of PFO in patients being considered for transcatheter closure. While transesophageal echo (TEE) bubble study is the current standard reference for diagnosing PFO, transthoracic echo bubble study with second harmonic imaging (TTE-HI) may be a preferable screening test for RLS as it is a non-invasive and low cost technique. The aim of this meta-analysis was to determine the accuracy of TTE-HI compared to TEE used as the reference test.

Methods: A systematic review of Medline, Cochrane and Embase was done to look for all the prospective studies assessing for intracardiac RLS using TTE-HI compared to TEE as the reference; both TTE-HI and TEE were performed with a contrast agent and a maneuver to provoke RLS in all studies.

Results: A total of fifteen studies with 1995 patients (mean age 53.6 ± 6.1 ; 43% male) fulfilled the inclusion criteria. The weighted mean sensitivity and specificity for TTE-HI were 90.5% (95% CI: 88.1 to 92.6%) and 92.6% (95% CI: 91.0 to 94.0%) respectively.

The overall positive likelihood ratio (LR+) was 13.52 (95% CI: 6.99 to 26.12) and the overall negative likelihood ratio (LR-) was 0.13 (95% CI: 0.07 to 0.24).

Conclusion: TTE-HI is a reliable, non-invasive alternative diagnostic modality to TEE which is highly sensitive and specific for detecting RLS. TEE is limited by patient tolerance. If delineation of the precise anatomy is required, then TEE can be obtained before scheduling a patient for transcatheter PFO closure.



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Footnotes

Author Disclosures: **M. Mojadidi:** None. **J. Winoker:** None. **S.C. Roberts:** None. **P. Msaouel:** None. **M.O. Zaman:** None. **R. Gevorgyan:** None. **J.M.**

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