

Response to Letter Regarding Article, “Transesophageal Echocardiography in Cryptogenic Stroke and Patent Foramen Ovale Analysis of Putative High-Risk Features From the Risk of Paradoxical Embolism Database”

Response:

Schuchlenz¹ makes important observations that help frame the conclusions we reached through analysis of the transesophageal echocardiography data from the Risk of Paradoxical Embolism (RoPE) database and appropriately highlights some of the limitations of this data set. Specifically, important anatomic features (presence or absence of a prominent eustachian valve) were not routinely reported across the component databases. Additionally, microbubbles were routinely injected via the antecubital vein, a site that Schuchlenz¹ correctly identifies as correlating less well with anatomic size.

To create our RoPE database,² component studies were combined and data were harmonized with the goals of improving on the methodological and statistical limitations of small individual studies. Yet harmonization across databases creates its own challenges and necessarily excludes details that might not be uniformly collected across component studies, including some transesophageal echocardiography variables. Our observation that proposed that high-risk transesophageal echocardiography features do not correlate with the significance of an observed patent foramen ovale for patients with cryptogenic stroke³ should be viewed not as a failure of the imaging modality as ideally applied. Instead, we view it as a call for further refining the technique, improving standardization and conducting further research, and as a call too for development of complimentary techniques to better assess risk.

Sources of Funding

This study was partially funded by grants UL1 RR025752, R01 NS062153, and R21 NS079826 from the National Institutes of Health.

Disclosures

Drs Kent and Thaler have consulted for WL Gore Associates. Dr Thaler is a consultant to AGA Medical Corporation. The other authors report no conflicts.

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References

- Schuchlenz H. Letter by Schuchlenz Regarding Article, “Transesophageal echocardiography in cryptogenic stroke and patent foramen ovale: analysis of putative high-risk features from the risk of paradoxical embolism database.” *Circ Cardiovasc Imaging*. 2014;7:572.
- Thaler DE, Di Angelantonio E, Di Tullio MR, Donovan JS, Griffith J, Homma S, Jaigobin C, Mas JL, Mattle HP, Michel P, Mono ML, Nedeltchev K, Papetti F, Ruthazer R, Serena J, Weimar C, Elkind MS, Kent DM. The risk of paradoxical embolism (RoPE) study: initial description of the completed database. *Int J Stroke*. 2013;8:612–619.
- Wessler BS, Thaler DE, Ruthazer R, Weimar C, Di Tullio MR, Elkind MS, Homma S, Lutz JS, Mas JL, Mattle HP, Meier B, Nedeltchev K, Papetti F, Di Angelantonio E, Reisman M, Serena J, Kent DM. Transesophageal echocardiography in cryptogenic stroke and patent foramen ovale: analysis of putative high-risk features from the risk of paradoxical embolism database. *Circ Cardiovasc Imaging*. 2014;7:125–131.

(*Circ Cardiovasc Imaging*. 2014;7:573.)

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Circ Cardiovasc Imaging is available at <http://circimaging.ahajournals.org>

DOI: 10.1161/CIRCIMAGING.114.001756

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Circ Cardiovasc Imaging. 2014;7:573

doi: 10.1161/CIRCIMAGING.114.001756

Circulation: Cardiovascular Imaging is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231

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Print ISSN: 1941-9651. Online ISSN: 1942-0080

The online version of this article, along with updated information and services, is located on the World Wide Web at:

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