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Proper Sizing of Patent Foramen Ovale and Grading of Residual Right-to-Left Shunt

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Authors

Kumar, Preetham
Mojadidi, Mohammad K
Tobis, Jonathan M

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Letters

TO THE EDITOR

Proper Sizing of Patent Foramen Ovale and Grading of Residual Right-to-Left Shunt

Gaspardone et al. (1) report that pre-procedural spontaneous right-to-left shunt (RLS) grade and patent foramen ovale (PFO) width are predictors of significant residual RLS following percutaneous suture-mediated PFO closure in patients with cryptogenic stroke or transient ischemic attack. These findings show that the NobleStitch (HeartStitch, Fountain Valley, California) is safe and effective in closing PFOs. However, a few limitations are worth highlighting.

The investigators used transesophageal echocardiography (TEE) to size the PFOs. We documented that PFO width measured using TEE (1.5 ± 1.2 mm) significantly underestimated true PFO width measured using a sizing balloon (10.5 ± 4.2 mm), because PFOs remain closed most of the time, and gentle inflation of the PFO by a sizing balloon allows the PFO to assume its true shape and size (2). This could affect the range of PFO widths the NobleStitch can effectively close. One solution is to redo the analyses using the right anterior oblique projection dimensions obtained by the sizing balloon prior to implanting the NobleStitch.

Similarly, the investigators used transthoracic echocardiography (TTE) to detect and grade post-PFO closure residual RLS. However, TTE is less sensitive than TEE in detecting PFOs (3). The low diagnostic yield of bubble studies with TTE implies that TTE misses a substantial number of PFOs and residual RLS. On the contrary, transcranial Doppler has higher sensitivity for the detection of RLS compared with TTE (4). This raises the possibility that some of the post-PFO closure assessments of shunt versus no shunt were misclassified.

The potential benefits of a suture system to close PFOs are significant. However, the true complete PFO closure rate is important to know, especially if the technique will be used in future studies of migraineurs with PFO.

*Preetham Kumar, MD
Mohammad K. Mojadidi, MD
Jonathan M. Tobis, MD

*Loma Linda University Health
Department of Medicine
11234 Anderson Street
Loma Linda, California 92354, USA
E-mail: pk.kumarp.316@gmail.com

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The authors have reported that they have no relationships relevant to the contents of this paper to disclose.
The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the Author Center.

REFERENCES

1. Gaspardone A, Sgueglia G, De Santis A, et al. Predictors of residual right-to-left shunt after percutaneous suture- mediated patent fossa ovalis closure. J Am Coll Cardiol Intv 2020;13:2112–20.

2. Kumar P, Rusheen J, Tobis J. A comparison of methods to determine patent foramen ovale size. Catheter Cardiovasc Interv 2020;96:E621–9.

3. Mojadidi M, Winoker J, Roberts S, et al. Accuracy of conventional transthoracic echocardiography for the diagnosis of intracardiac right-to-left shunt: a meta-analysis of prospective studies. Echocardiography 2014;31:1036–48.

4. Mojadidi M, Roberts S, Winoker J, et al. Accuracy of transcranial Doppler for the diagnosis of intracardiac right-to-left shunt: a bivariate meta-analysis of prospective studies. J Am Coll Cardiol Img 2014;7:236–50.

TO THE EDITOR

Suture-Mediated Percutaneous Patent Foramen Ovale Closure

A Call for Careful Imaging Assessment

Percutaneous patent foramen ovale (PFO) closure has been shown to be superior to medical therapy for secondary prevention in selected patients with cryptogenic stroke. However, despite their recognized efficacy, PFO occluder devices may carry a potential risk for early and late complications and could limit access to the left atrium, eventually precluding future transcatheter left-sided catheter-