

When is percutaneous left atrial appendage closure a valid alternative to oral anticoagulation in atrial fibrillation?

Vittorio Pengo

Thrombosis Research Laboratory, University of Padova; Arianna Foundation on Anticoagulation, Bologna, Italy

Three recent randomized trials have attempted to address the question on whether left atrial appendage closure (LAAC) is a valid alternative to oral anticoagulant treatment in patients with atrial fibrillation (AF): the OPTION trial, the CLOSURE-AF trial and the CHAMPION-AF trial.¹⁻⁴

The OPTION trial

The OPTION trial evaluated patients with atrial fibrillation undergoing catheter ablation, thus representing a relatively selected population that was, on average, less frail compared with common AF patients. A total of 1600 patients were randomized to left atrial appendage closure *versus* oral anticoagulation, with a follow-up of 36 months. The mean age was approximately 70 years, and 34% were women.

The trial demonstrated that LAAC was associated with a reduction in non-procedure-related bleeding compared with anticoagulation, while maintaining similar efficacy for the composite thromboembolic endpoint.

Specifically, the primary safety endpoint (non-procedural major or clinically relevant non-major bleeding at 36 months)

occurred in 8.5% of the LAAC group *versus* 18.1% of the anticoagulation group. The primary efficacy endpoint (all-cause death, stroke, or systemic embolism at 36 months) was 5.3% *versus* 5.8%, confirming noninferiority of LAAC. Device- or procedure-related complications occurred in approximately 2.7% of patients.

OPTION supports the concept that, after ablation, LAAC may represent a reasonable strategy in patients with non-low thromboembolic risk, particularly when the goal is to reduce long-term exposure to direct oral anticoagulants (DOACs) and bleeding burden. A major strength is the comparison with contemporary therapy, largely DOAC-based. The main limitation is the post-ablation setting, which selects relatively younger and less complex patients, thereby limiting generalizability to very elderly and frail populations.

Remarks

More recently, the ALONE-AF trial, which randomized patients after ablation to continuation *versus* discontinuation of anticoagulation, showed that in selected patients (*i.e.*, those without documented AF recurrence at 1 year), discontinuing DOAC therapy may be more favorable than continuing it, particularly in terms of the bleeding-ischemia balance.

Two post-ablation strategies are therefore emerging:

- continuation of DOACs according to CHA₂DS₂-VASC score
- discontinuation of DOACs in the absence of documented recurrence, without LAAC

The CLOSURE-AF trial

CLOSURE-AF evaluated a nearly opposite clinical scenario: patients with atrial fibrillation at high risk for both thromboembolism and bleeding, who were older and more complex. This German multicenter PROBE trial randomized 912 patients, with a median follow-up of 3 years. Inclusion criteria required non-valvular AF, CHA₂DS₂-VASC ≥ 2 , and high bleeding risk defined by HAS-BLED ≥ 3 , prior major bleeding, or advanced chronic kidney disease. The mean age was approximately 79 years.

In this setting, results were considerably less favorable for the procedure: LAAC failed to demonstrate noninferiority compared with best medical therapy. The primary composite endpoint (stroke, systemic embolism, major bleeding, cardiovascular or unexplained death) occurred at incidence rates of 16.8 *versus* 13.3 per 100 patient-years (device vs medical therapy), with a difference in restricted mean survival time of -0.36 years and $p=0.44$ for noninferiority.

Corresponding author: Vittorio Pengo, Thrombosis Research Laboratory, Campus Biomedico Pietro d'Abano, University of Padova, Via Orus 2/B, 35129, Padova, Italy.
E-mail: vittorio.pengo@unipd.it

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Moreover, periprocedural complications were not negligible: approximately 6% within 7 days, including major bleeding, cardiac tamponade, two procedural deaths, and one device embolization.

Remarks

CLOSURE-AF substantially challenges the notion that LAAC is automatically the “natural” choice in frail patients. In this population, periprocedural vulnerability and early bleeding risk may offset or even outweigh the expected benefit. The trial suggests that in very high-risk elderly patients, individualized medical therapy remains the standard of care, at least with currently available devices and strategies.

The CHAMPION-AF trial

CHAMPION-AF, published online in *The New England Journal of Medicine* on March 28, 2026, explored a different question: can LAAC become a first-line strategy compared with NOACs in a broader population with non-valvular AF who are eligible for long-term anticoagulation?

A total of 3,000 patients were randomized (1499 device; 1501 NOAC), with a mean age of approximately 72 years. Bleeding risk was relatively low (mean HAS-BLED 1.3), and nearly half of patients had undergone prior AF ablation.

The primary efficacy endpoint (cardiovascular death, stroke, or systemic embolism) occurred in 5.7% of patients treated with the WATCHMAN FLX device *versus* 4.8% with NOACs (HR 1.20; 95% CI 0.87-1.66), meeting the criterion for noninferiority. The primary safety endpoint (non-procedural ISTH bleeding) was 10.9% *versus* 19.0% (HR 0.55), demonstrating superiority for LAAC. Net clinical benefit also favored the device (15.1% *vs* 21.8%; HR 0.66).

However, total stroke rates were numerically higher in the device group (3.6% *vs* 2.5%), although the trial was not powered for superiority on this individual component.

Remarks

CHAMPION-AF attempts to extend LAAC use beyond patients with contraindications to anticoagulation. However, interpretation should remain cautious. The observed benefit is largely driven by a reduction in bleeding—particularly clinically relevant non-major bleeding—while the ischemic signal is less robust, with 33 strokes in the anticoagulation group *versus* 50 in the device group. In addition, procedural bleeding events were excluded from the safety endpoint.

Overall perspective

The key question is no longer simply “LAAC or not?”, but rather: in which patient, at what timing and with which primary goal (*e.g.*, bleeding reduction, treatment simplification, or as an alternative in cases of contraindication or frailty). The 2024 ESC guidelines maintain a cautious stance.⁵

Practical points

LAAC is primarily indicated in: contraindication to DOACs, recurrent major bleeding, inability to continue anticoagulation. In the 2024 ESC guidelines there is less emphasis on liberal use and greater attention to: pre-procedural imaging, device-related thrombosis, residual leak, post-implant antithrombotic regimen.

Conclusions

Debate on this issue is increasing. Caution should remain the guiding principle in patients with AF. Benefit *vs* risk is still uncertain unless clear contraindications to oral anticoagulant treatment are evident (Table 1).

Table 1. Summary of the 3 trials examined.

Study	Population	N.	Comparison	Primary endpoint	Key results	Take-home message
OPTION	AF after catheter ablation; elevated thromboembolic risk	1600	LAAC <i>vs</i> OAC/DOAC	Efficacy: all-cause death, stroke, systemic embolism; Safety: non-procedural major/CRNM bleeding	Noninferior efficacy (5.3% <i>vs</i> 5.8%); reduced bleeding (8.5% <i>vs</i> 18.1%)	After ablation, LAAC is a credible alternative to DOACs, especially when bleeding is a concern
CLOSURE-AF	Non-valvular AF at high stroke and bleeding risk; elderly/frail	912	LAAC <i>vs</i> best medical therapy	Stroke, systemic embolism, major bleeding, CV/unexplained death	Failed noninferiority; numerically worse outcomes with LAAC; ~6% procedural complications	In very high-risk patients, individualized medical therapy remains standard
CHAMPION-AF	Non-valvular AF eligible for long-term NOAC; broad population, low-moderate bleeding risk	3000	WATCHMAN FLX <i>vs</i> NOAC	Efficacy: CV death, stroke, systemic embolism; Safety: non-procedural ISTH bleeding	Noninferior efficacy (5.7% <i>vs</i> 4.8%; HR 1.20); reduced bleeding (10.9% <i>vs</i> 19.0%); favorable net benefit	Potential first-line strategy in selected patients, but caution due to stroke signal

AF, atrial fibrillation; LAAC, left atrial appendage closure; OAC, oral anticoagulants; DOAC, direct oral anticoagulants; CRNM, clinically relevant non-major bleeding; CV, cardiovascular; ISTH, International Society on Thrombosis and Haemostasis; NOAC, new oral anticoagulants; HR, hazard ratio.

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