

Pulsed Field Ablation in Brazil: What the Registry Tells Us, and What It Does Not

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The article Brazilian Registry of Pulsed Field Catheter Ablation for the Treatment of Patients with Atrial Fibrillation, recently published in this journal by May et al., is a timely and genuinely important contribution.¹ Documenting the initial 394 pulsed field ablation (PFA) procedures across 60 centers and 60 operators is no small task, and the authors deserve credit for organizing a voluntary, multicenter effort this early in the technology's domestic adoption. The absence of major complications and the demonstration of a steep, short learning curve are reassuring findings for centers still considering whether to adopt PFA.

That said, a few aspects of the registry warrant further discussion.

First, the voluntary nature of data submission is a meaningful limitation, and perhaps a more consequential one than the authors acknowledge. Registries built on self-reporting are inherently susceptible to selection bias: operators encountering complications or suboptimal outcomes may simply not submit. The authors note this possibility, but the absence of any mechanism to quantify it means the complication rate of zero should be interpreted with appropriate caution. The MANIFEST-PF registry, which reported a 2.1% major complication rate across a far larger European cohort, reminds us that no ablation technique is entirely free of risk.²

Second, the near-universal use of general anesthesia (98%) stands out. In Europe, deep sedation is the norm for PFA in most centers, and the MANIFEST-PF experience suggests it does not compromise outcomes.² In Brazil, the preference for general anesthesia may reflect the availability

of anesthesiology support at high-volume urban centers, but it also raises a practical concern. If PFA is to fulfill its promise of improving access to catheter ablation in a country where 5 million people live with atrial fibrillation,³ the scalability of this anesthesia model needs scrutiny. Facilities outside major urban centers, which are precisely those most underserved, may lack the infrastructure to replicate it.

Third, the 26% rate of additional lesions required after remapping, predominantly in lower-volume centers, deserves more than a brief mention. This figure has direct implications for procedural success and, ultimately, for long-term arrhythmia recurrence. The ADVENT trial, conducted under more standardized conditions, reported a 73.3% one-year freedom from a composite endpoint. Whether the Brazilian cohort will approach comparable rates remains unknown. Fluoroscopy-only guidance, used in 22% of procedures, may be a contributor to incomplete isolation; the authors acknowledge this concern, but it calls for a more structured analysis.^{4,5}

Finally, the learning curve analysis, while interesting, was derived from only 125 of the 394 procedures due to missing data. This reduces confidence in the plateau estimates of 10–15 procedures, which may be optimistic for operators at lower-volume centers with more complex patient profiles.

None of these points diminishes the registry's value. But they do highlight that the current data represent a starting point, not a conclusion. A prospective follow-up with mandatory reporting, standardized imaging protocols, and at least 12 months of rhythm follow-up would substantially strengthen what is already a promising foundation for PFA in Brazil.

Keywords

Atrial Fibrillation; Brazil

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Manuscript received March 04, 2026, revised manuscript March 13, 2026, accepted March 13, 2026

DOI: <https://doi.org/10.36660/abc.20260176i>

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Reply

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We would like to thank you for the thoughtful letter and constructive comments regarding our recent article.¹ We fundamentally agree with their observations, which accurately highlight critical areas for the future evolution of this technology in Brazil.

As the authors rightly point out, the voluntary nature of our registry is a meaningful limitation that makes it inherently susceptible to selection bias. Operators encountering complications might simply choose not to submit their data. Therefore, we entirely agree that our reported complication rate of zero should be interpreted with appropriate caution. As the adoption of pulsed field ablation (PFA) expands across diverse centers in Brazil, we anticipate that real-world complication rates will likely align more closely with larger cohorts like the European MANIFEST-PF registry, which reported a 2.1% major complication rate. This serves as a vital reminder that no ablation technique is completely free of risk.²

We also share the concern regarding the near-universal use of general anesthesia, which was utilized in 98% of our cohort. While general anesthesia ensures patient immobility and maximizes precision during the initial learning phase of a novel technology, it requires specialized infrastructure and personnel. Facilities outside major urban centers may lack the infrastructure to replicate this approach, making a gradual transition toward deep sedation, which is the norm in many European centers, an important consideration for the future.

Furthermore, the letter accurately highlights the 26% rate of additional lesions required after remapping. We agree that this figure has direct implications for procedural success

and, ultimately, long-term arrhythmia recurrence. Relying solely on fluoroscopy guidance, which occurred in 22% of our procedures, may indeed contribute to incomplete isolation. The integration of electroanatomic mapping and intracardiac echocardiography can enhance lesion accuracy, and establishing standardized imaging protocols will be vital moving forward.

Regarding the learning curve analysis, the authors correctly observed that it was derived from a smaller subset of procedures, precisely 125 out of the 394 total cases. We wish to clarify the methodology behind this: the learning curve analysis was restricted to this smaller subset of patients because we established a strict requirement that an operator must have performed a minimum of 20 cases for their learning curve to be statistically evaluated. Procedures from operators who had not yet met this threshold were naturally excluded from this specific sub-analysis. However, we readily acknowledge that the observed plateau of 10 to 15 procedures may be optimistic for operators managing more complex patient profiles in lower-volume settings.

Ultimately, we also agree with the conclusion that our current data represent a starting point rather than a definitive answer. Establishing a prospective follow-up registry with mandatory reporting, standardized imaging protocols, and at least 12 months of rhythm follow-up is the necessary next step to substantially strengthen the foundation of PFA in Brazil. We appreciate the opportunity to clarify these points and remain committed to advancing the safe and effective use of this technology.

Letter to the Editor

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