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EDITORIAL

Fast-Track to Atrial Fibrillation Relief? High-Power Ablation Shows Speed Without Compromise

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Note

See related article, Theis et al. 2025;3(1): pages 1-12.

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The randomized, prospective study by Theis et al. provides timely and clinically relevant insights into the comparative performance of high-power, short-duration (HPSD) ablation versus standard-power radiofrequency ablation for pulmonary vein isolation (PVI) in patients with paroxysmal atrial fibrillation (PAF). By employing a rigorous protocol based on ablation index (AI) guidance and a strict interlesion distance of ≤6 mm, the investigators offer high-quality data over an impressively long mean follow-up of more than 31 months.

A key contribution of this work is the demonstration that HPSD ablation at 45W significantly reduces procedure time, total ablation time, and fluoroscopy exposure without compromising long-term efficacy. Arrhythmia-free survival rates at the end of follow-up were similar in both groups (77% in HPSD vs. 72% in standard-power; p = 0.09), aligning with previous studies that have supported the safety and effectiveness of HPSD in achieving durable PVI. These procedural gains are clinically relevant, particularly in high-volume centers where efficiency and resource optimization are crucial.

Importantly, the authors highlight procedural safety with meticulous attention to esophageal temperature monitoring and touch-up ablation protocols. Nonetheless, the significantly higher incidence of steam pops in the HPSD group (25% vs. 7%) raises important safety considerations, particularly in the absence of routine endoscopic or cerebral imaging to assess for subclinical complications such as esophageal lesions or silent cerebral emboli. The observation of a rapid esophageal temperature rise during posterior wall ablation underscores the importance of temperature-guided modulation of energy delivery in these regions.

Another notable finding is the temporal distribution of arrhythmia recurrence. The early plateau in recurrence rates in the HPSD group suggests that when failures occur, they may arise from immediate lesion discontinuities or thermal injury rather than late reconnections, which appeared slightly more common in the standard-power group. This finding invites further mechanistic exploration into lesion durability and transmurality at varying power settings and AI targets.

The study is not without limitations, including its monocentric design and the individualized AI values that deviate from the more widely accepted CLOSE protocol. These factors may affect external validity and comparability to other trials. Nevertheless, the thorough follow-up and consistency of procedural parameters add strength to the internal validity of the findings.

In conclusion, Theis et al. advance the field of atrial fibrillation ablation by providing compelling evidence that HPSD ablation using AI guidance is both time-efficient and clinically effective. The observed procedural advantages must, however, be balanced against the elevated rate of thermal phenomena such as steam pops, which necessitate careful esophageal monitoring and further study. As ablation technology and lesion metrics continue to evolve, this study offers a valuable benchmark for safe and effective PVI strategies and sets the stage for future multicenter investigations to refine ablation power protocols further.

Conflict of Interests

None

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