Editorial

ESC 2025 Madrid: Practice-Changing Trials and What They Mean for Cardiology and Electrophysiology

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https://doi.org/10.18502/jthc.v20i2.19840

The European Society of Cardiology Congress (ESC) 2025 in Madrid delivered a concentrated set of clinical trials with immediate relevance to practice across cardiology subspecialties. While the congress spanned topics from hypertension and coronary disease to cardiomyopathies and device therapy, a subset of trials is especially salient for electrophysiologists: comparative outcomes of pulsed-field vs radiofrequency ablation in atrial fibrillation (AF); strategies for anticoagulation after successful AF ablation; and broader therapeutic advances (oral myosin inhibitors for obstructive hypertrophic cardiomyopathy [HCM]) that shift paradigms in medical management. Here, I summarize these trial findings, discuss their electrophysiology implications, and propose priorities for future research and guideline consideration.

Key Trial Findings

Pulsed-Field Ablation (PFA) vs Radiofrequency Ablation (RFA) for Paroxysmal AF

The BEAT-PAROX-AF data presented at ESC 2025 showed that PFA did not demonstrate superiority over contemporary RFA with respect to single-procedure success at 12 months. Nonetheless, PFA was associated with a more favorable safety profile and shorter procedural times.[1] For electrophysiology practice, these findings position PFA as a technology with potential procedural advantages (reduced collateral injury, shorter procedural times) but with comparable efficacy to high-quality RFA for paroxysmal AF patients, as demonstrated within the context of the studied platforms and operators. Adoption decisions should, therefore, weigh procedural workflow, device availability, operator experience, and longer-term durability data. Especially in countries with limited financial resources, switching to this costly alternative may not be reasonable.

Anticoagulation After Successful AF Ablation (ALONE-AF)

The ALONE-AF trial reported that in patients without recurrent atrial arrhythmia following successful ablation, discontinuation of long-term oral anticoagulation resulted in a lower risk for a composite outcome including stroke, systemic embolism, and major bleeding.[2] This suggests that routine indefinite anticoagulation after apparently durable ablation may not be necessary for all patients. These findings must be applied cautiously: patient selection (CHA2DS2-VASc score, durability of rhythm control, detection of asymptomatic recurrences) and high-quality rhythm monitoring remain crucial if anticoagulation is to be stopped. The results will provoke guideline discussion, but do not negate individualized risk-based decision-making.

Myosin Inhibitors in Obstructive HCM (ODYSSEY-HCM and MAPLE-HCM)

Two phase 3 trials presented at ESC 2025 contrasted oral myosin inhibitors (mavacamten, aficamten) vs standard medical therapy (including β-blockers) and invasive septal reduction strategies.[3] Results showed meaningful improvements in symptoms, exercise capacity, and hemodynamics with these agents and suggested that oral pharmacologic therapy could be a transformative alternative or bridge to invasive procedures in selected patients. For electrophysiologists caring for HCM patients with arrhythmic risk, broader adoption of effective medical therapy may alter referral patterns and the timing of device therapy decisions.

Antiplatelet Therapy and Coronary Prevention—Clopidogrel vs Aspirin

A large pooled analysis presented at the congress found clopidogrel superior to aspirin in preventing major cardiovascular events in patients with coronary artery disease, without a significant increase in bleeding.[4] Although not an electrophysiology study, this has downstream implications for periprocedural antithrombotic strategies in device implantation and ablation: antiplatelet regimens, drug interactions, and bleeding risk stratification should be reconsidered in light of these population data.

What This Means for Electrophysiology Practice

1. Technology Adoption Must Be Evidence-Driven and Pragmatic

PFA offers safety and workflow advantages but similar efficacy to RFA at 12 months.[1] Early adopters should ensure robust operator training, registry participation, and structured follow-up to monitor durability and rare adverse events. In low-income countries, it may not be reasonable to allocate financial resources to this new technology.

2. Anticoagulation After Ablation Will Become a More Nuanced Shared Decision

ALONE-AF provides evidence that stopping anticoagulation may be reasonable in selected, well-monitored patients without documented recurrences.[2] Nevertheless, widespread change requires careful incorporation of continuous rhythm monitoring strategies and explicit patient counseling. Institutions should develop algorithms that combine stroke-risk score, rhythm monitoring intensity, and patient values.

3. Interdisciplinary Care Is Increasingly Important

Novel medical therapies (eg, myosin inhibitors) and advances in prevention (antiplatelet strategy) mean electrophysiologists must coordinate closely with heart failure, HCM, and interventional colleagues to time ablation, device implantation, or invasive septal procedures appropriately.[3,4]

Research and Guideline Priorities

- Larger, longer-term randomized comparisons of PFA and RFA across diverse centers and operators (including persistent AF populations) to define durability and rare complications.[1]
- Prospective, protocolized strategies for anticoagulation discontinuation after ablation, including continuous implantable loop recorder vs intermittent monitoring arms, to determine safe thresholds for stopping therapy.[2]
- Registries tracking real-world outcomes of new HCM medical therapies on arrhythmic events and device therapy needs.[3]

Conclusion

ESC 2025 provided multiple trials likely to influence practice in the short-to-intermediate term. For electrophysiologists, the most immediate implications center on ablation technology choice and anticoagulation strategy post-ablation—areas where patient-level risk stratification, prospective monitoring, and multidisciplinary pathways will determine who benefits most from change.[1,2] As always, the transition from trial data to bedside practice should be cautious, data-driven, and accompanied by robust post-marketing surveillance and collaborative guideline updates.

References

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