

Pulse field ablation for treatment of atrial fibrillation

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Introduction: Cardiac ablation has been established as the first-line treatment for atrial fibrillation. Pulse field ablation is a novel nonthermal cardiac ablation modality, with recent studies showing it to have a comparable acute efficacy with fewer complications compared to traditional thermal ablation procedures.¹ The goal was to showcase a single-center experience with this new technology.

Patient and Methods: This was a retrospective, single-center analysis. All patients with paroxysmal or persistent AF that underwent pulse field ablation from April 2023 to August 2024 at University Hospital Centre Zagreb were included in the study. Primary success was defined as the complete pulmonary vein isolation during the procedure. Safety outcomes included acute major adverse events.

Results: A total of 89 patients were included in the study (67.4% male, mean age 61 ± 11 years with LVEF 56% and LAVI 37.5ml/m²) of which 57.4% had paroxysmal AF. Complete pulmonary vein isolation was achieved in 87 patients (97.8%) with an average procedure duration of 47.6 ± 13.6 min with an average fluoroscopy time of 11.6 ± 3.9 min and total radiation dose of 11.6 ± 3.9 mGy. Posterior wall ablation was performed in a total of 39 patients (43.8%) of which 26 were the ones with PersAF (p<0.001). In 24 (27.0%) patients this was a redo procedure after a previous cryoballoon or radiofrequency ablation. There was only one registered catheter malfunction. Acute major events occurred in 2 (2.2%) of patients, one being a cardiac tamponade and other a femoral pseudoaneurysm.

Conclusion: This retrospective study suggests a high acute success rate for pulse field ablation for AF (97.8%) with a low acute major adverse event rate (2.2%). Incomplete pulmonary vein isolation only occurred in the two cases that developed cardiac tamponade and catheter dysfunction.

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LITERATURE

1. Turagam MK, Neuzil P, Schmidt B, Reichlin T, Neven K, Metzner A, et al. Safety and Effectiveness of Pulsed Field Ablation to Treat Atrial Fibrillation: One-Year Outcomes From the MANIFEST-PF Registry. *Circulation.* 2023 Jul 4;148(1):35-46. <https://doi.org/10.1161/CIRCULATIONAHA.123.064959>