

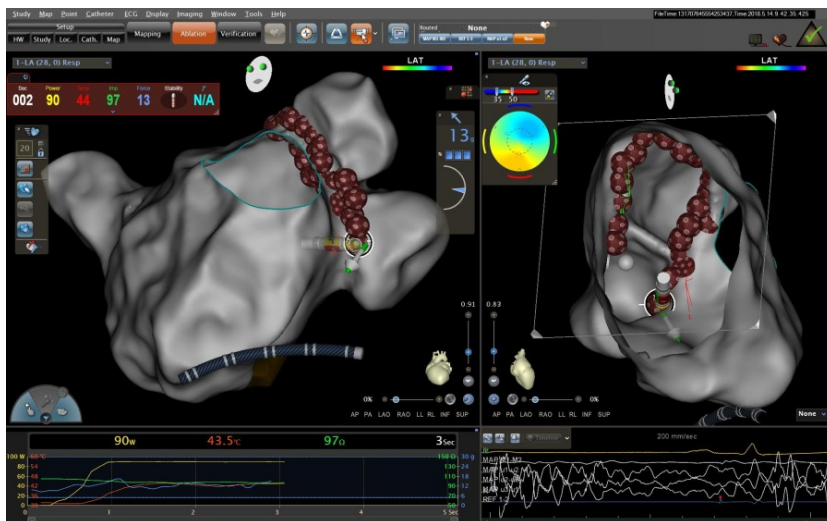
# Very high-power short-duration (HPSD) ablation for Pulmonary Vein Isolation – comparison of a 90W 4 seconds approach to a HPSD-CLOSE strategy.

## Introduction

Circumferential pulmonary vein isolation (PVI) using radiofrequency ablation (RFA) is a standard of care intervention for patients with symptomatic atrial fibrillation (AF). During follow up a substantial amount of patients needs a redo procedure due to reconnections on the basis of insufficient ablation lesions. High-power short-duration ablation (HPSD) is expected to create efficient lesions while causing less complications. The aim of this study was to compare intraprocedural duration - a surrogate parameter for intraprocedural safety – as well as the complication rate of very HPSD (90 Watt, 4sec) to a strategy using 50W guided by the CLOSE-protocol using the Ablation Index (AI), an arbitrary unit composed of power, contact force and ablation time.

## Methods

We retrospectively analyzed intraprocedural duration from 46 patients who were scheduled for first-do-PVI. A very HPSD ablation protocol with 90W and a 4 second duration cut-off was compared to a HPSD-CLOSE approach (50 Watts; AI 550 at the anterior LA wall; AI 400 at the posterior LA wall, roof and floor) in terms of ablation time, left-atrial dwell time, fluoroscopy- and total procedure time and complication rate.



## Results

As expected, the very HPSD group (n = 22) showed significantly shorter ablation times (mean ablation time 8,3 min +/- 4,1 min vs 23,2 min +/- 10,0; p < 0,001) with non-significant trends of time-saving for the other measured parameters (mean left atrial dwell time 77 min +/- 28,4 min vs 90 min +/- 31,9 min; p 0,162; fluoroscopy-time 13,1 min +/- 6,9 min vs 14,7 +/- 11,7 min; p 0,588; total procedure time 112,7 min +/- 30,1 min vs. 126,6 min +/- 35,8 min; p 0,167). There was no significant difference concerning the complication rate (very HPSD group n = 2: 1x pseudoaneurysm with the need of thrombin-injection and 1x pericardial tamponade requiring pericardial puncture; HPSD-CLOSE group n = 1: pericardial tamponade requiring pericardial patch repair; p = 0,499) compared to the HPSD-CLOSE approach.

## Conclusions

Very high-power short-duration ablation (90 W, 4 sec) for PVI significantly shortens ablation times thereby reducing radiation exposure without significantly increasing the rate of relevant intraprocedural complications. The clear trend of time-saving across other measured parameters (left atrial dwell time, total procedure time and fluoroscopy time) will most likely show significance with a raising number of cases in the future.