

Elizaveta Strebkova*
Supervisor: Dr. Amiran Revishvili**

INTRODUCTION

- ✓ The prevalence of Atrial Fibrillation (AF) will continue to increase ^{1, 2}
- ✓ AF is associated with high risks of thromboembolic events (12-31% of all ischemic strokes) ³
- ✓ Of particular interest are non-paroxysmal AF, which accounts for up to 70% of all forms of AF

ACTUAL

Current approaches to the treatment of lone AF

- ✓ The effectiveness of Cox-Maze IV is **96%** ^{5, 6}
- ✓ Efficacy of catheter ablations for persistent AF is extremely low - **54%** ⁶
- ✓ In 2006, Wolf et al. described a video-assisted thoracoscopic surgical ablation (TSA), the effectiveness of TSA is close to Cox-Maze procedure – **65-96%** ⁷

ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS)		
Recommendations	Class ^a	Level ^b
Concomitant AF ablation should be considered in patients undergoing cardiac surgery, balancing the benefits of freedom from atrial arrhythmias and the risk factors for recurrence (left atrial dilation, years in AF, age, renal dysfunction, and other cardiovascular risk factors).	IIa	A
Thoracoscopic—including hybrid surgical ablation—procedures should be considered in patients who have symptomatic paroxysmal or persistent AF refractory to AAD therapy and have failed percutaneous AF ablation, or with evident risk factors for catheter ablation failure, to maintain long-term sinus rhythm. The decision must be supported by an experienced team of electrophysiologists and surgeons.	IIa	B
Thoracoscopic—including hybrid surgical ablation—procedures may be considered in patients with persistent AF with risk factors for recurrence, who remain symptomatic during AF despite at least one failed AAD and who prefer further rhythm control therapy.	IIb	C

Video-assisted thoracoscopic ablation (TSA) of AF is an alternative surgical treatment for lone AF on the off-pump (beating heart)
Currently, TSA can include: pulmonary vein isolation, posterior left atrial wall isolation, additional linear ablations, Marshall's ligament dissection and left atrial appendage exclusion.

But the effectiveness of TSA varies considerably **from 26% to 86%** due to the variation in patients, surgical technique and follow-up period ^{8, 9, 10}

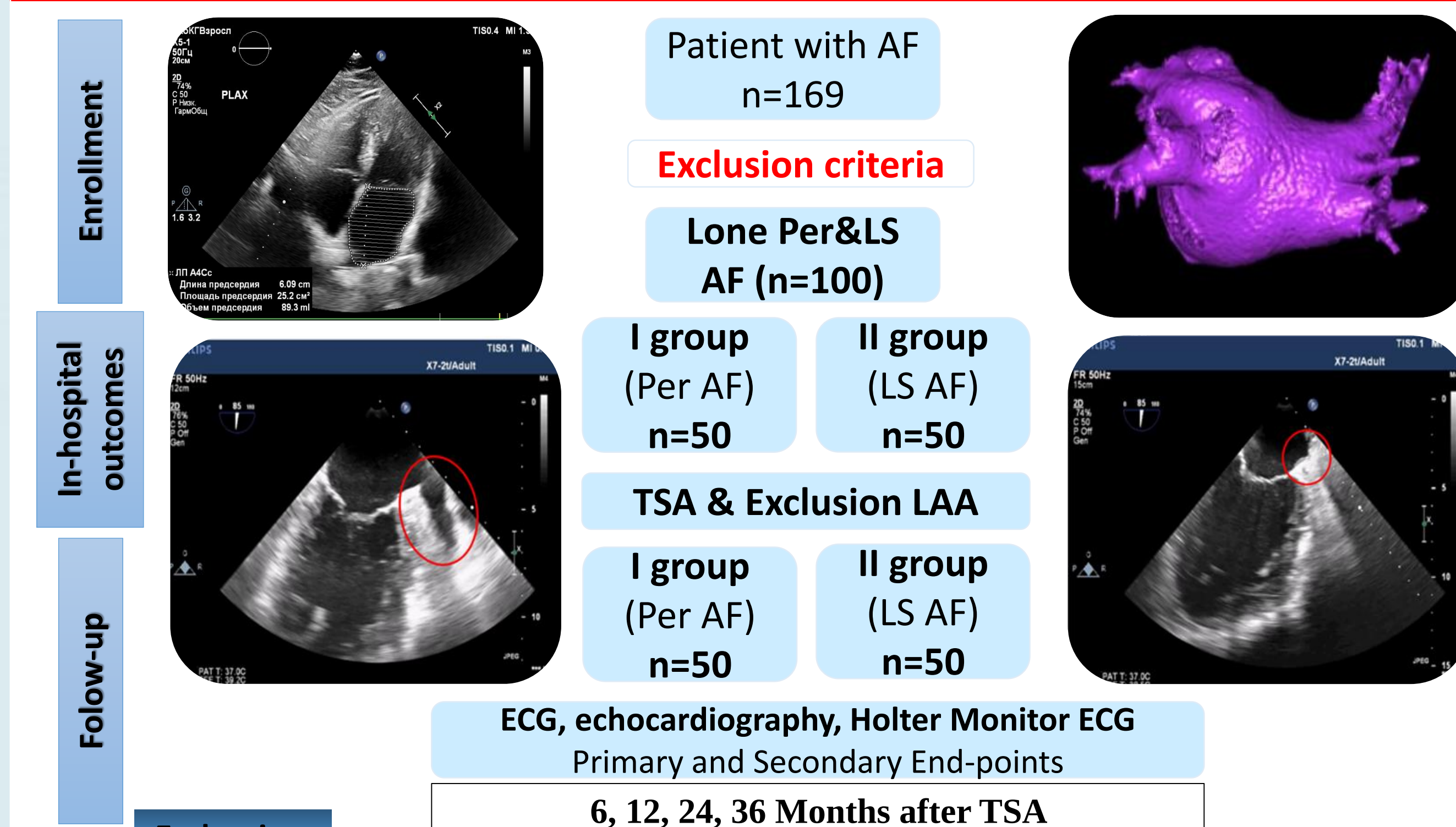
OBJECTIVE

To assess the efficacy and safety of thoracoscopic ablation with single-stage exclusion of left atrial appendage in patients with persistent and long-standing AF

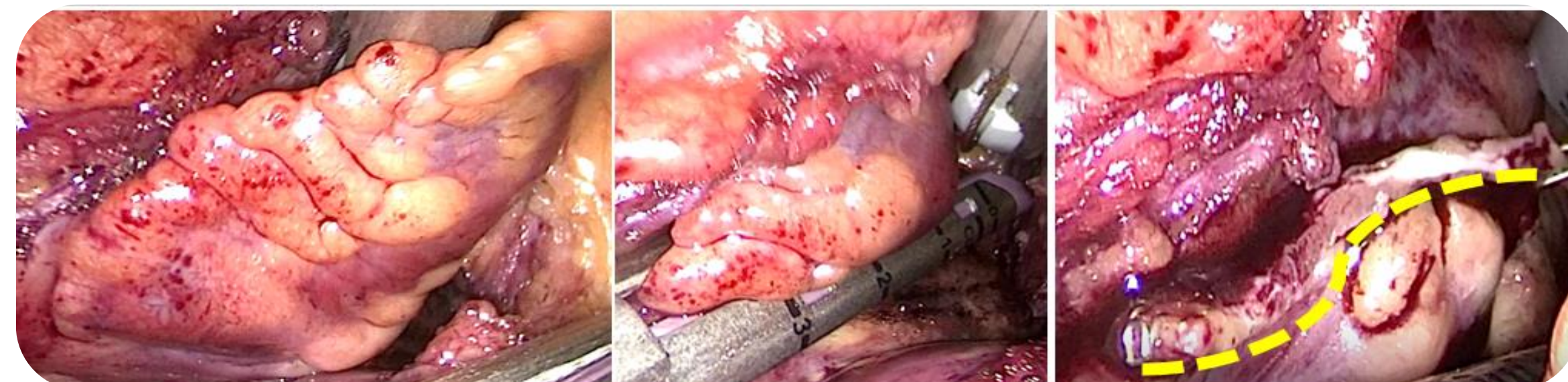
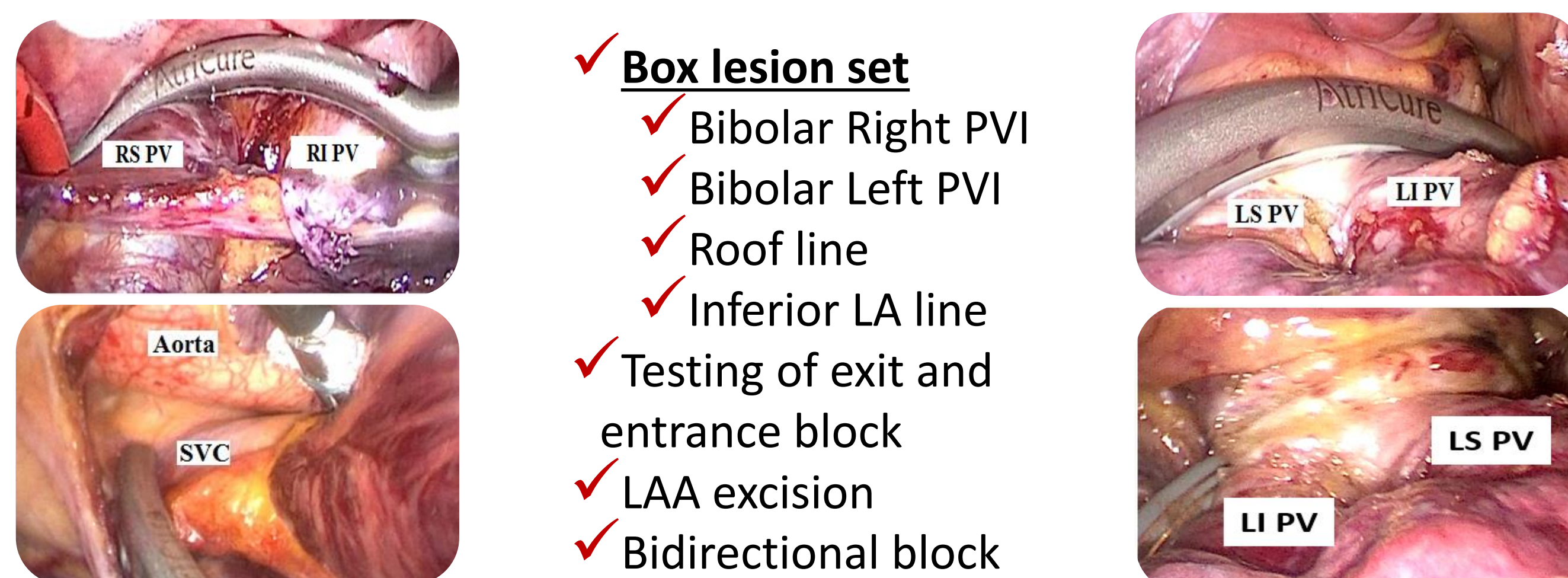
PATIENTS&METHODS

A single-center prospective, pseudorandomised study
Patients with symptomatic lone AF (n=100) were included in the study for the period from 2018 to 2020

STUDY DESIGN



SURGICAL PROCEDURE

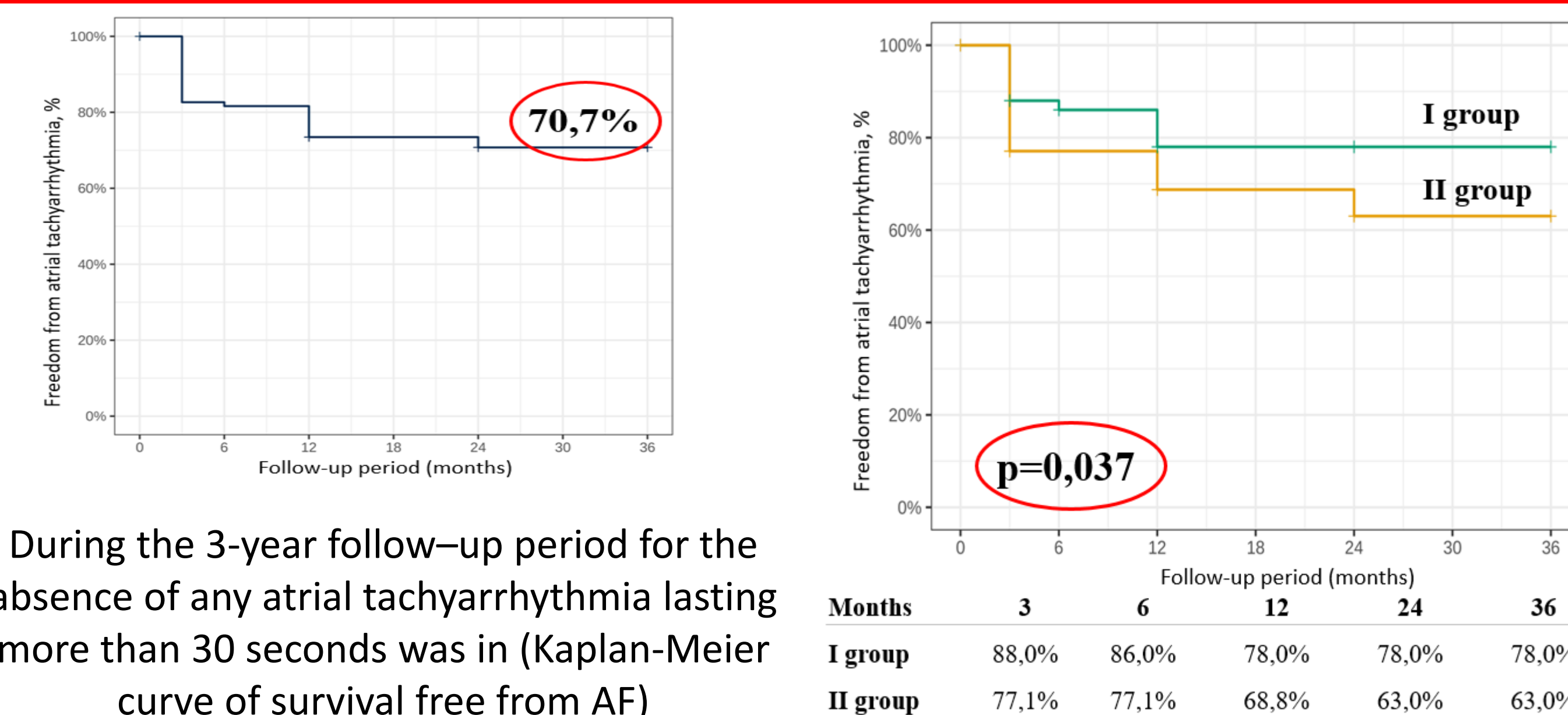


RESULTS

Clinical characteristics of patient population

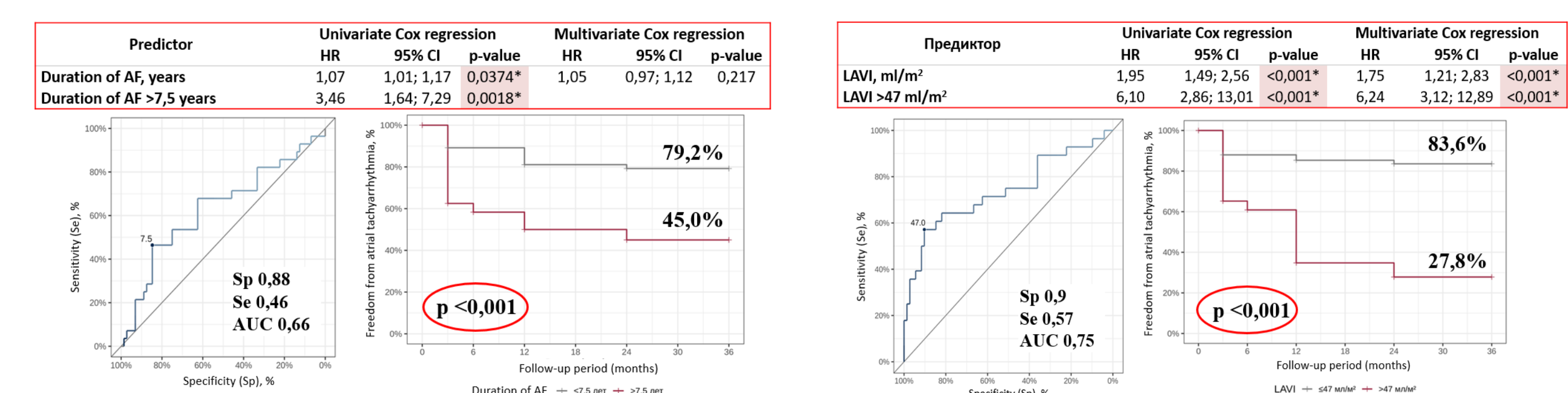
- ✓ A statistically significant difference between the two study groups was obtained for **the duration of AF (p=0,001)** and the **"burden" of AF (p <0,0001)**;
- ✓ According to other clinical characteristics and instrumental examination data, patients were statistically comparable in the two study groups (p >0,05);
- ✓ Intraoperative parameters were statistically comparable in the two study groups (p >0,05);

Long-term clinical outcomes



During the 3-year follow-up period for the absence of any atrial tachyarrhythmia lasting more than 30 seconds was in (Kaplan-Meier curve of survival free from AF)

Predictors of atrial tachyarrhythmia recurrence



Duration of AF **more than 7.5 years** was associated with a **3.46-fold increased risk** of recurrent atrial tachyarrhythmias after TSA [95% CI: 1.64; 7.29, p = 0018]

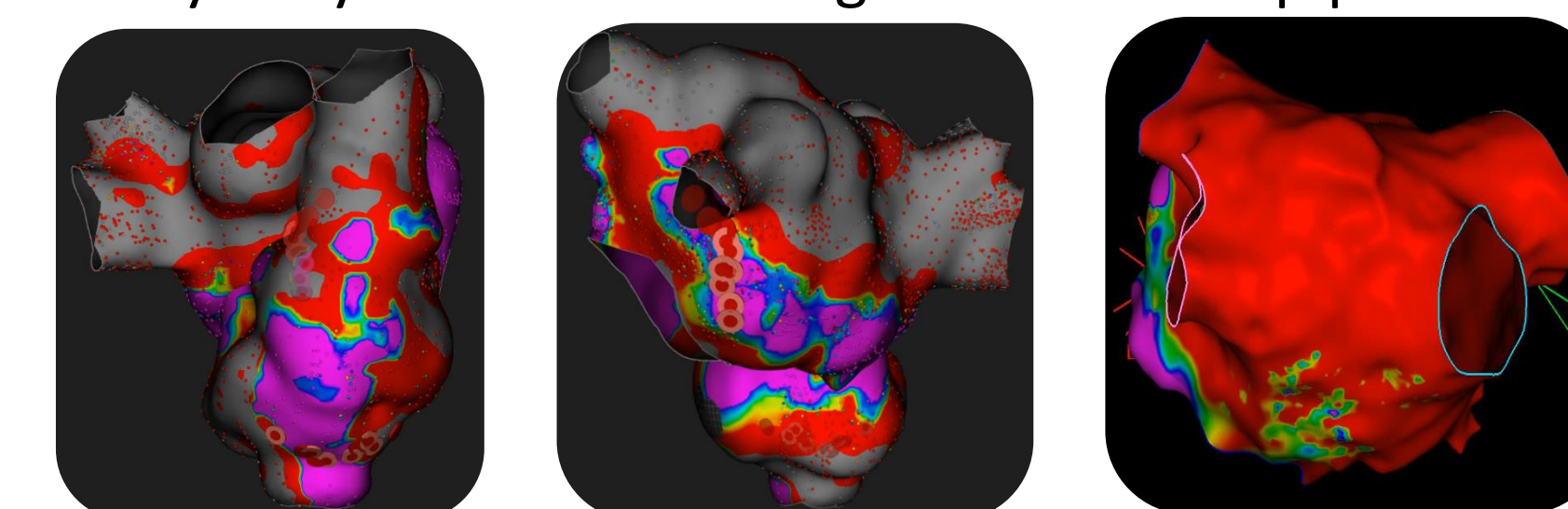
LAAVI greater than 47 ml/m² is associated with a **6.1-fold increased risk** of recurrent atrial tachyarrhythmia after TSA [95% CI: 2.86; 13.1, p < 0001]

CONCLUSIONS

- The efficacy of thoracoscopic Box lesion ablation with LAA exclusion showed a higher rate of sinus rhythm retention in patients with persistent AF compared to patients with long-standing persistent AF at long-term follow-up (p=0,037);
- AAT in the long-term follow-up period provides statistically significant prevention of return of atrial tachyarrhythmias in patients with persistent and long-persisting forms of AF (p <0,001)
- Staged treatment of non-paroxysmal AF can increase efficacy by up to 86.9% in the long-term follow-up period compared to solitary TSA
- Significant risk factors for recurrent atrial tachyarrhythmias after thoracoscopic ablation are: history of AF over 7.5 years [OP=3,46; 95% ДИ: 1,64; 7,29, p=0018] and LAVI more than 47 ml/m² [OP=6,1; 95% ДИ: 2,86; 13,01, p <0001]

PERSPECTIVES

- ✓ Video-assisted thoracoscopic ablation has been shown to be highly effective in the treatment of non-paroxysmal AF by eliminating atrial tachyarrhythmias in patients with persistent AF;
- ✓ For patients with non-paroxysmal AF, a staged approach should be considered as a treatment of choice to increase freedom from atrial tachyarrhythmias in the long-term follow-up period.



ABBREVIATIONS

AF - Atrial fibrillation	Per AF - persistent AF
TSA - Thoracoscopic ablation	LS AF - long-standing AF
LA - Left atrium	non-par AF - non-paroxysmal AF
LAVI - Left Atrial Volume Index	PM - pacemaker
LAA - Left atrial appendage	HR - hazard ratio
PVI - Pulmonary vein isolation	CI - confidence interval
MACE - major adverse cardiac events	RFA - radiofrequency ablation

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