

A retrospective cohort study

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INTRODUCTION

- Intracardiac echocardiography (ICE) was used in the field of electrophysiology since 1990s¹
- Studies reported that using ICE to guide radio-frequency catheter ablation (RFCA) can enhance procedural outcomes, reduce complications, reduce radiation exposure, even completely avoid radiation exposure, and improve patient safety²⁻³
- Compared to transesophageal echocardiography, ICE is more attractive to patients with atrial fibrillation (AF) in screening left atrial appendage thrombus, as it is associated with no discomfort, greater compliance, and a lower incidence of complications⁴⁻⁶
- A real-world study describing the utilization of ICE and assessing the clinical benefits of ICE in guiding RFCA in Chinese patients with AF would further support the recommendations from the Chinese expert consensus regarding the applications of ICE

OBJECTIVES

- To evaluate the clinical values of ICE in guiding RFCA for AF and explore the factors driving the use of ICE in a Chinese tertiary hospital

METHODS

Study design

A retrospective cohort study

Study cohort

Patients underwent ICE- or traditional fluoroscopy (TF)-guided RFCA for AF from March 2022 to July 2023 in West China Hospital of Sichuan University, Chengdu, China

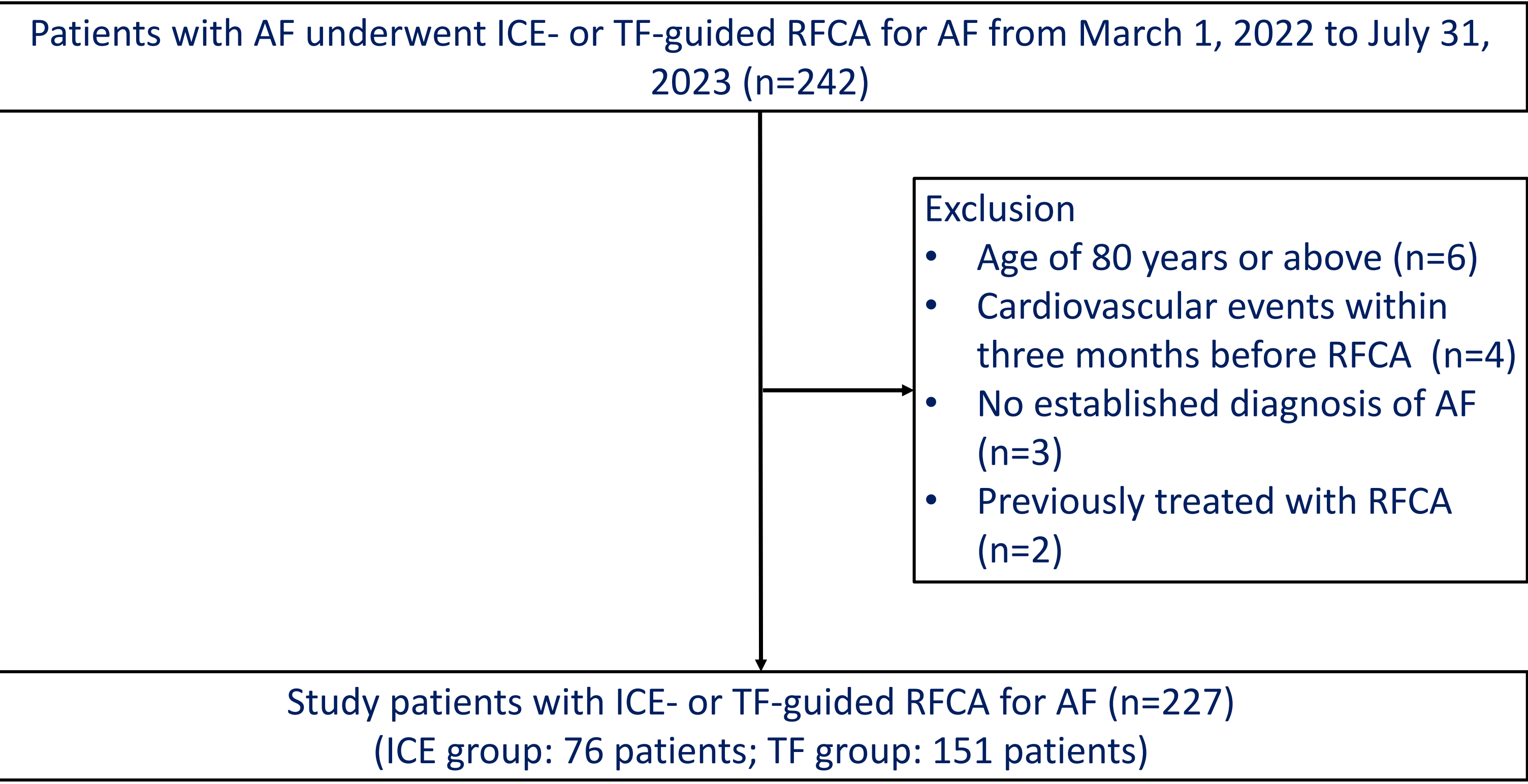
Data source

Hospital medical records containing information for patient baseline characteristics, procedure outcomes, radiation exposure, and ablation outcomes

Statistical data analysis

- Propensity score matched analysis to compare ICE with TF for procedure outcomes, radiation exposure, and ablation outcomes in patients with PVI only
- Multiple logistic regression analysis to explore the factors affecting the selection of ICE-guided RFCA in all included patients

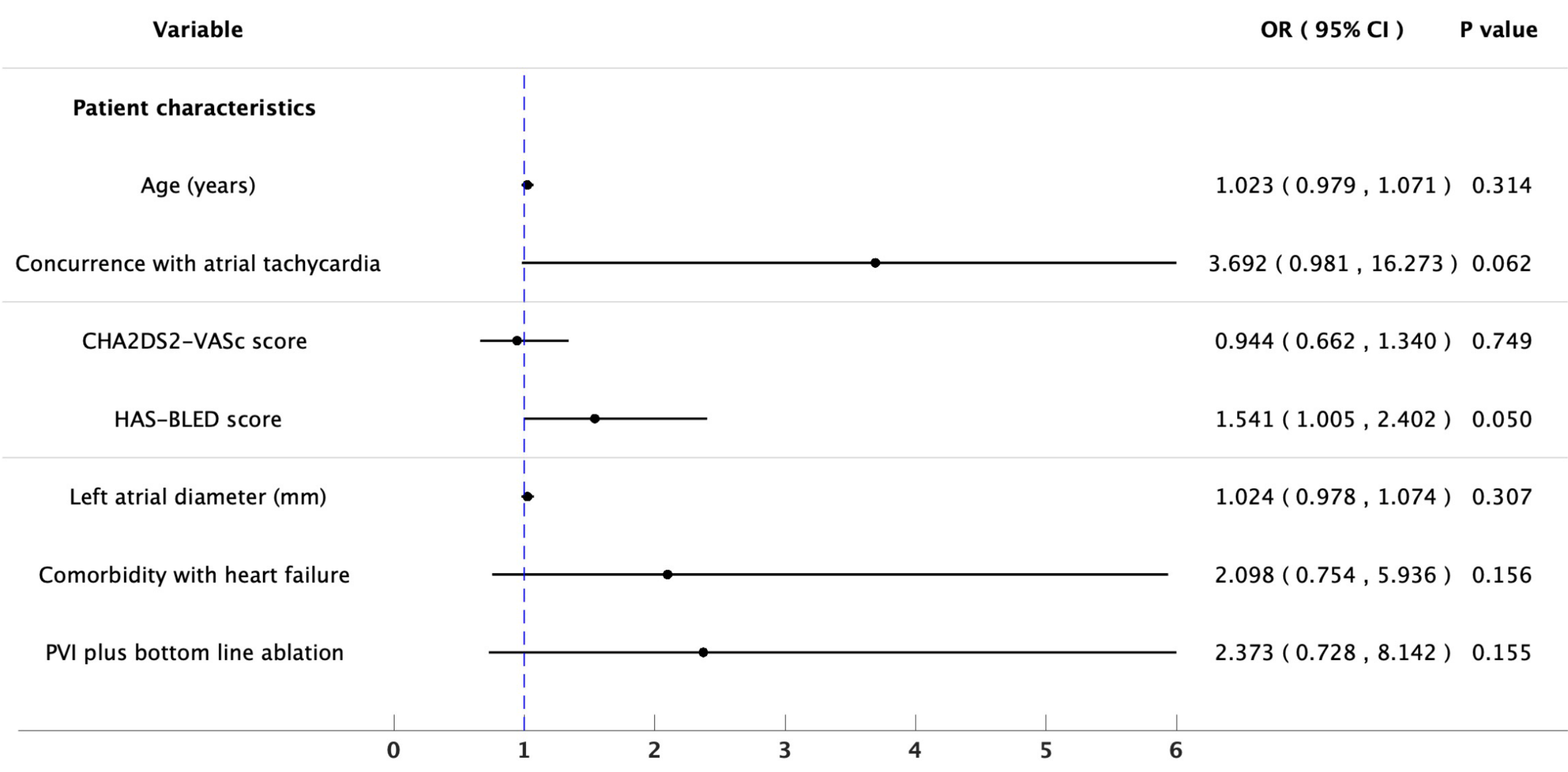
RESULTS: PATIENT IDENTIFICATION FLOWCHART



RESULTS: PATIENT BASELINE AND PROCEDURAL CHARACTERISTICS OF RFCA

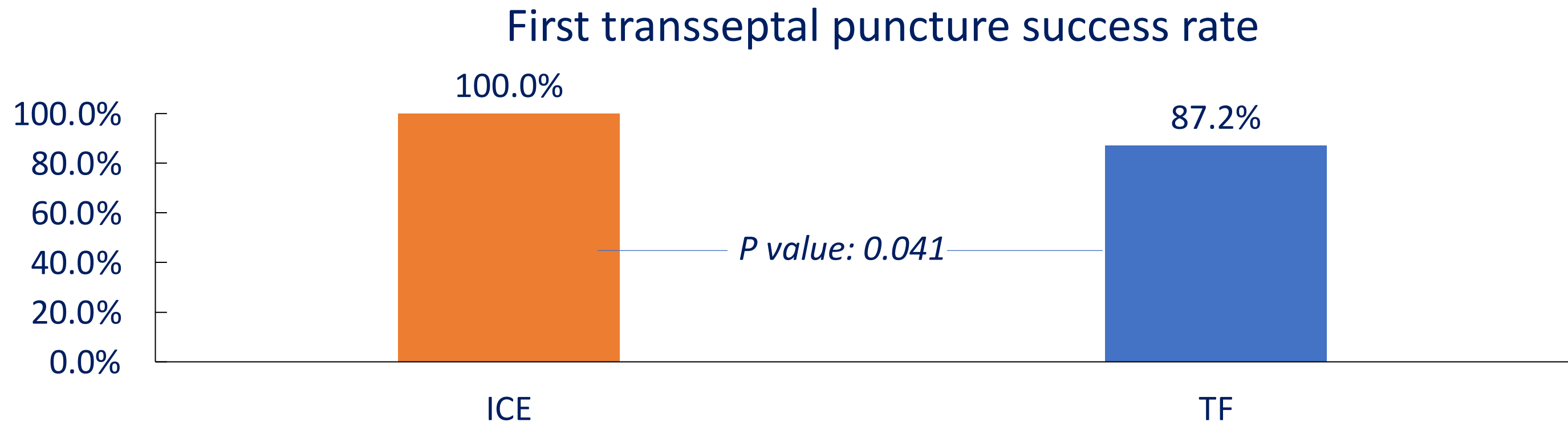
Study group	ICE (N=76)		TF (N=151)		P-value
	Mean/%	SD	Mean/%	SD	
Demographics					
Age (years)	65.0	10.2	60.3	10.6	0.001
Male	67.1%		64.9%		0.741
Body mass index	25.1	2.8	25.2	3.0	0.981
AF type					
Persistent AF	50.0%		44.4%		0.422
Paroxysmal AF	50.0%		55.6%		0.422
Preoperative evaluation					
Left atrium diameter (mm)	42.5	7.0	39.8	6.9	0.011
CHA2DS2-VASc score	2.2	1.5	1.6	1.4	0.002
HAS-BLED score	1.7	1.0	1.2	1.0	0.001
Comorbidity					
Heart failure	17.1%		7.9%		0.038
Concurrent arrhythmia					
Atrial tachycardia	10.5%		2.6%		0.029
Interventional cardiologist					
FH	50.0%		22.5%		<0.001
PXB	44.7%		40.4%		0.532
ZR	3.9%		31.8%		<0.001
Ablation approach					
PVI only	65.8%		70.2%		0.499
PVI plus Bottom line	13.2%		4.0%		0.011

RESULTS: FACTORS AFFECTING THE SELECTION OF ICE-GUIDED RFCA - MULTIPLE LOGISTIC REGRESSION



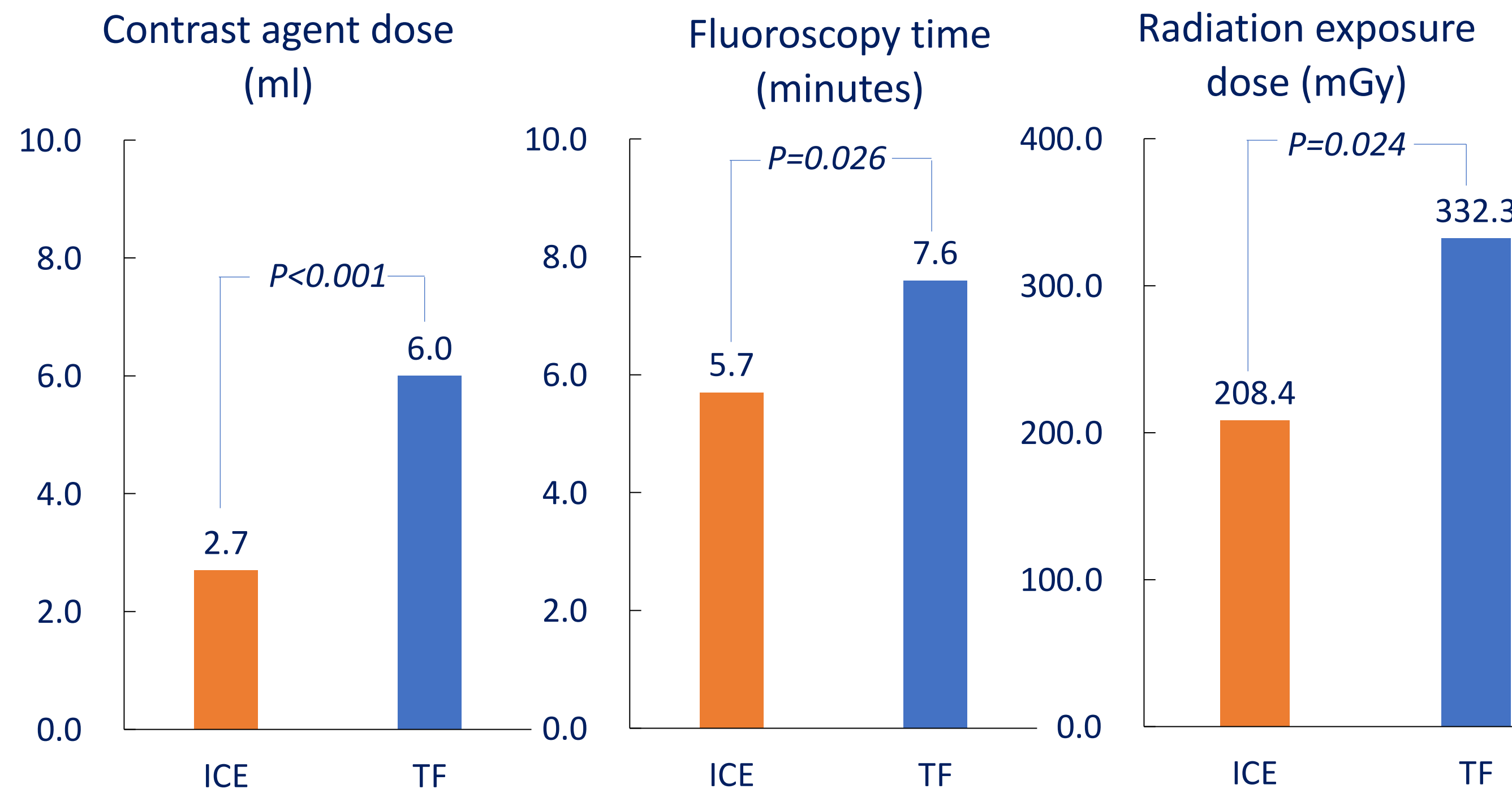
- ICE-guided RFCA was more likely to be used in patients with complicated AF (older age, concurrent atrial tachycardia, heart failure comorbidities, a larger left atrium, and a heightened risk of stroke and bleeding)
- Two Interventional cardiologists had unbalanced distribution in two groups

RESULTS: PROCEDURAL OUTCOMES OF 47 PROPENSITY SCORE MATCHED PAIRS FOR PVI ONLY



- ICE-guided RFCA was associated with a significantly higher first transseptal puncture success rate than TF-guided RFCA, after adjustment of baseline and procedural characteristics

RESULTS: RADIATION EXPOSURE OF 47 PROPENSITY SCORE MATCHED PAIRS FOR PVI ONLY



- ICE-guided RFCA was associated with a significantly less radiation exposure than TF-guided RFCA, after adjustment of baseline and procedural characteristics

LIMITATIONS

- Single-center retrospective study with limited sample size had insufficient power to fully demonstrate the values of ICE for RFCA in Chinese patients with AF

CONCLUSIONS

- ICE-guided RFCA was more used in patients with complicated AF. The preference to ICE-guided RFCA could substantially vary among interventional cardiologists.
- The superiority of ICE-guided RFCA over TF-guided RFCA was observed from a higher rate of first transseptal puncture success and reduced radiation exposure in a Chinese real-world setting.

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ABSTRACT INFORMATION

Presented at ISPOR 2024, 5-8 May 2024, Atlanta, GA, USA
Abstract #138075

FUNDING SOURCE

This study was sponsored by Johnson & Johnson Medtech (Shanghai) Ltd

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