



Acute durability of cavotricuspid isthmus block after pulsed electric field ablation: randomized comparison of two pentaspline catheter configurations (SECTION study)

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XXXIV. VÝROČNÍ SJEZD ČESKÉ KARDIOLOGICKÉ SPOLEČNOSTI
10.5.2026, Brno



INSTITUTE FOR CLINICAL
AND EXPERIMENTAL MEDICINE
DEPARTMENT OF CARDIOLOGY



ESC

European Society
of Cardiology

Europace (2025) 27, euaf234

<https://doi.org/10.1093/europace/euaf234>

CLINICAL RESEARCH

Acute durability of cavotricuspid isthmus block after pulsed electric field ablation: randomized comparison of two pentaspline catheter configurations (SECTION trial)

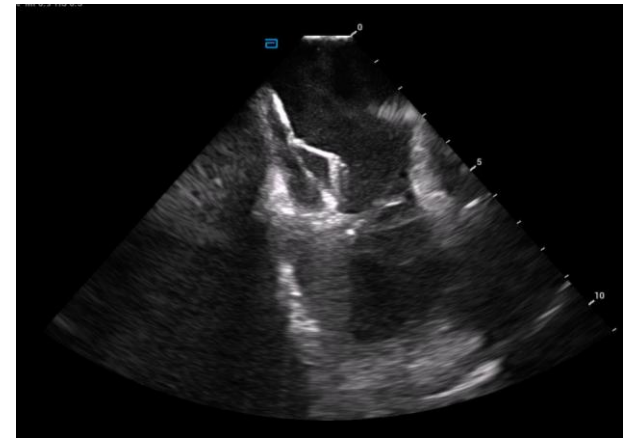
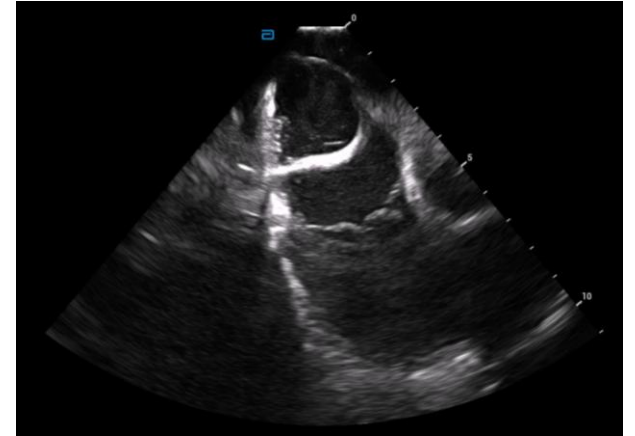
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Received 8 July 2025; accepted after revision 21 September 2025; online publish-ahead-of-print 23 September 2025

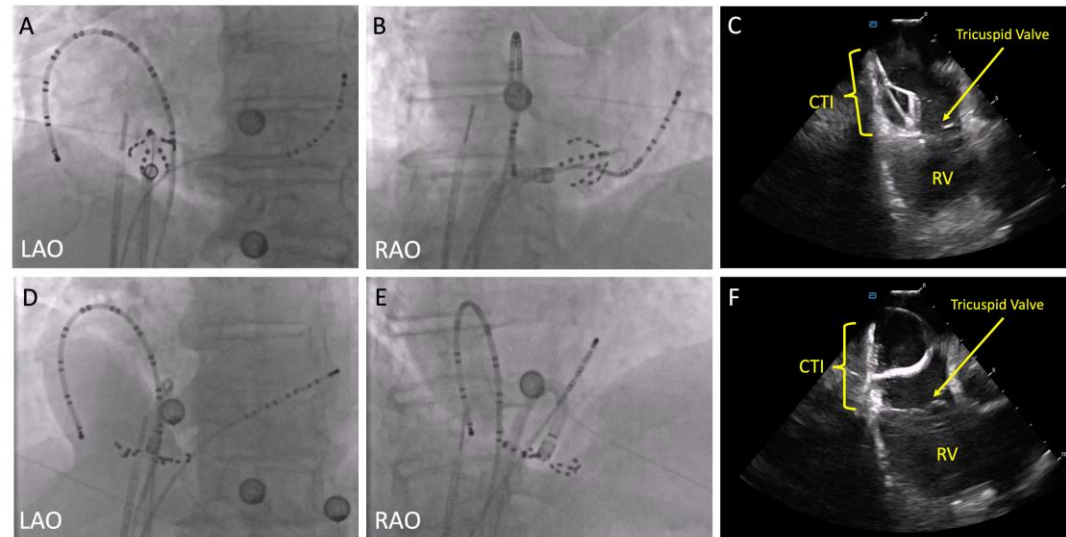
Introduction

- Cavo-tricuspid isthmus (CTI) ablation is commonly performed as a concomitant procedure in patients undergoing catheter ablation of atrial fibrillation (AF).
- However, the acute efficacy of the CTI ablation using pentaspline Farawave catheter and pulsed-electric field (PEF) energy has not been systematically evaluated.
- **Aims:** This randomized study assessed the acute efficacy and extent of haemolysis associated with CTI ablation when performed using one of the available configurations of the pentaspline catheter.



Methods

- Multicentre randomized trial
- Four high-volume centres in Czechia
- 178 patients with paroxysmal or persistent AF undergoing catheter ablation and concomitant CTI ablation
- CTI before LA ablation
- Pentaspline Farawave catheter
- Intracardiac echocardiography
- CS + decapolar catheter (bidirectional block)
- atropin + nitromint application
- Adenosin testing
- Blood samples before and after the procedure



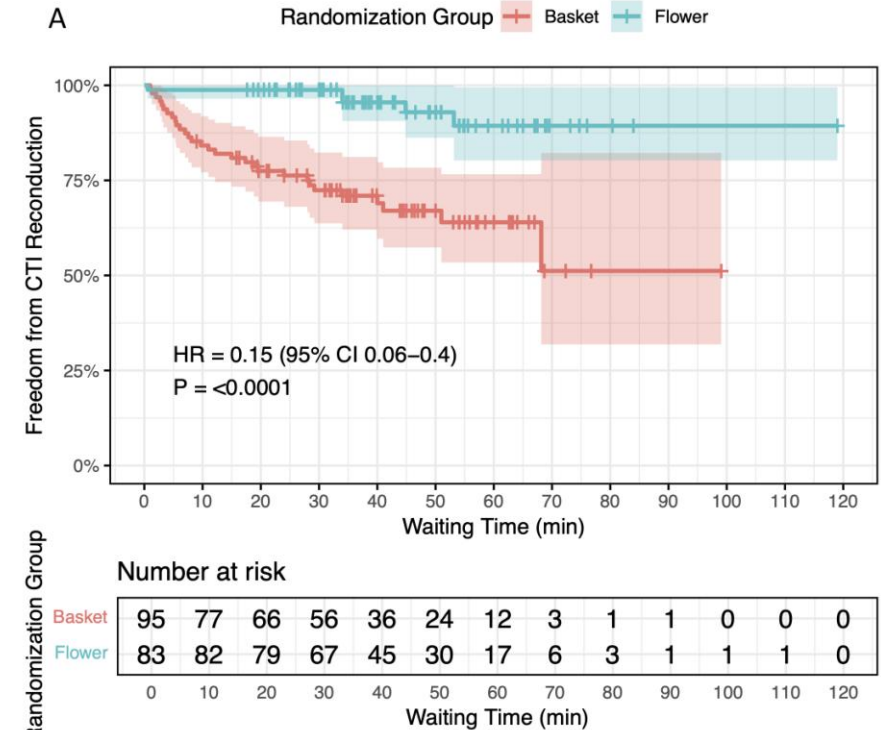
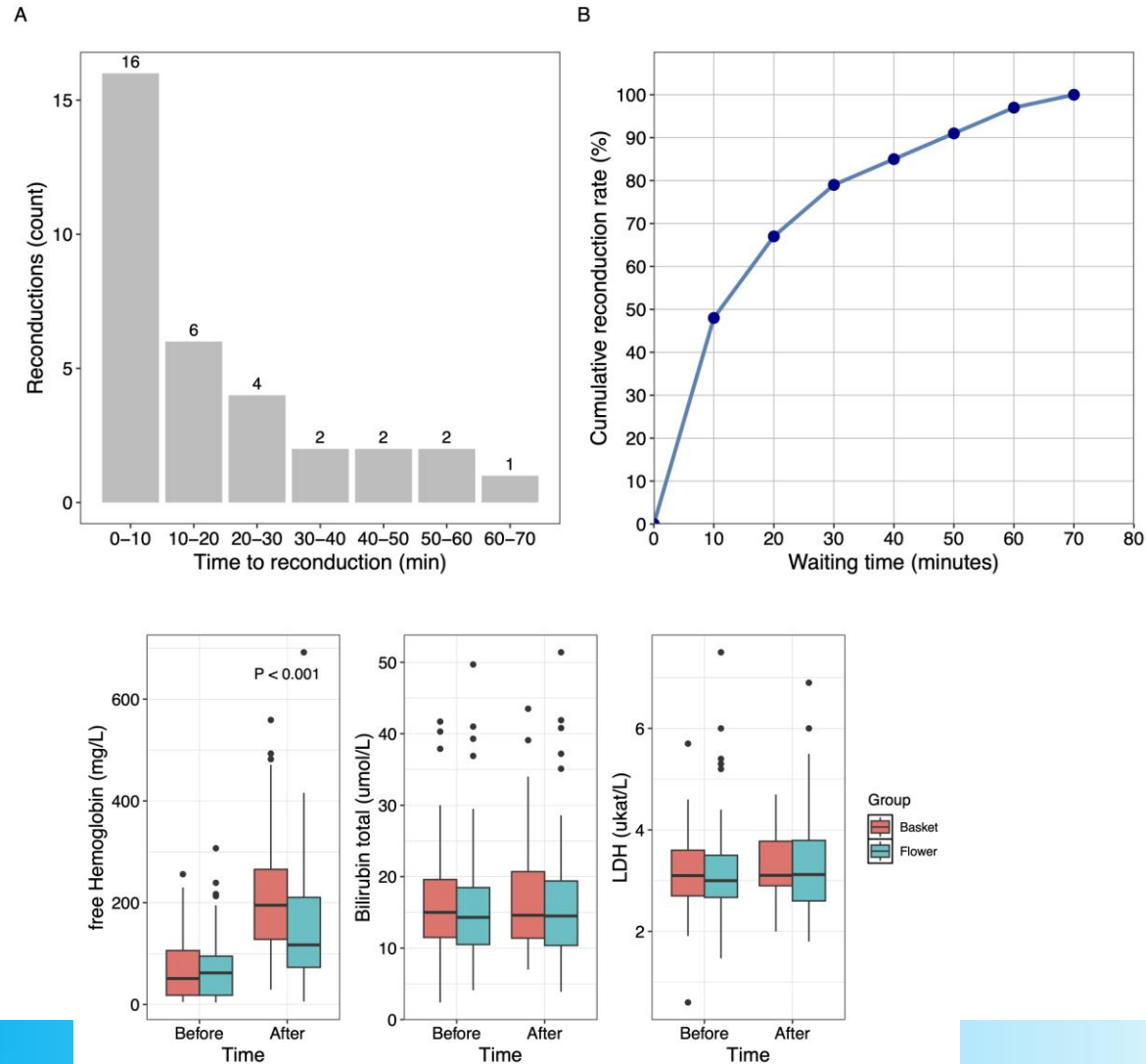
- Time to block
- Time to reconnection
- Number of applications until the CTI block
- Total number of applications
- Total number of CTI applications
- Hemolysis
- ST elevation

Baseline and procedural characteristics

	All N = 178	Basket group N = 95	Flower group N = 83	P-value*
Females	61 (34%)	25 (26%)	36 (43%)	0.02
Age (years)	65 (10)	65 (10)	66 (10)	0.4
BMI (kg/m²)	30.3 (5.2)	30.2 (5.3)	30.4 (5.1)	>0.9
AF history (months)	40 (43)	36 (38)	44 (48)	0.7
History of typical flutter	38 (21%)	21 (22%)	17 (20%)	0.8
Previous AF ablation	21 (12%)	14 (15%)	7 (8.4%)	0.2
Arterial hypertension	121 (68%)	70 (74%)	51 (61%)	0.081
Diabetes	34 (19%)	13 (14%)	21 (25%)	0.05
Coronary artery disease	17 (9.6%)	12 (13%)	5 (6.0%)	0.13
eGFR < 60 ml/min (CKD-EPI)	19 (11%)	11 (12%)	8 (9.6%)	0.7
CHA₂DS₂-VASc	2.57 (1.59)	2.43 (1.60)	2.73 (1.58)	0.2
Echocardiography				
LVEF (%)	56 (11)	55 (11)	56 (12)	0.5
LAVi (ml/m²)	46 (16)	46 (15)	46 (17)	0.8
LAd (mm)	45 (7)	45 (7)	46 (7)	0.2
TAPSE (mm)	22.0 (5.2)	22.5 (4.6)	21.5 (5.9)	0.2
S' (cm/s)	11.4 (4.8)	11.5 (5.1)	11.2 (4.3)	0.2
RA area (cm²)	21 (6)	22 (6)	21 (6)	>0.9
RV d1 (mm)	39.0 (5.7)	39.3 (6.6)	38.5 (4.4)	0.6
Rhythm on admission				0.6
Sinus rhythm	127 (71%)	68 (72%)	59 (71%)	
AF	42 (24%)	24 (25%)	18 (22%)	
Typical flutter	5 (2.8%)	2 (2.1%)	3 (3.6%)	
Atrial tachycardia	4 (2.2%)	1 (1.1%)	3 (3.6%)	

	All N = 178	Basket group N = 95	Flower group N = 83	P-value
Hospital stay (days)	2.57 (1.99)	2.51 (1.73)	2.64 (2.27)	0.6
Procedural skin-to-skin time (min)	82 (27)	82 (27)	81 (28)	0.7
Fluoroscopy time (min)	11.3 (4.9)	10.8 (5.0)	11.9 (4.9)	0.2
Number of applications until the CTI block	5.9 (4.3)	8.0 (4.1)	3.4 (3.1)	<0.001
Time to CTI block (min)	2.3 (4.1)	2.9 (3.2)	1.6 (4.9)	<0.001
Reconduction	35 (20%)	30 (32%)	5 (6.0%)	<0.001
Time to CTI reconduction (min)	18 (18)	15 (16)	33 (20)	0.10
Waiting time for CTI reconduction (min)**	45 (18)	44 (17)	46 (19)	0.9
CTI length (mm)	37 (9)	36 (10)	37 (9)	0.5
Pouch on CTI	14 (7.9%)	9 (9.5%)	5 (6.0%)	0.4
Total number of CTI applications	11.8 (4.7)	13.3 (5.1)	10.1 (3.4)	<0.001
Total number of applications	75 (18)	77 (18)	72 (18)	0.05
AADs at discharge				0.8
No AADs	88 (49%)	45 (47%)	43 (52%)	
Ic AADs	47 (26%)	26 (27%)	21 (25%)	
Amiodarone	43 (24%)	24(25%)	19 (23%)	
Posterior wall ablation	133 (75%)	70 (74%)	63 (77%)	0.6
Anterior wall ablation	65 (37%)	34 (36%)	31(38%)	0.8
Mitral isthmus ablation	15 (8.4%)	9 (9.5%)	6 (7.2%)	0.6

Results



Conclusion

- Flower superior to basket configuration for CTI ablation:
 - Fewer applications
 - Less hemolysis
 - Lower reconduction rate
- No additional value of adenosine testing
- On transient ST elevation in flower group

**FLOWER CONFIGURATION SHOULD BE PREFERRED
APPROACH FOR CTI ABLATION!**



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Thank you!



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