

## Clinical Outcomes of Bachmann's Bundle vs Right Atrial Pacing: A Real-World Study

Inês Brito Cruz, Maria João Primo, Didier Martinez, Diogo Fernandes, Carolina Saleiro, Patrícia Alves, Pedro Sousa, João André Ferreira, Natália António, Lino Gonçalves

### Background

**Right atrial (RA)** pacing is associated with P-wave prolongation, interatrial conduction delay, and left-sided atrioventricular dyssynchrony.

**Bachmann's bundle (BB)** pacing preserves physiological conduction and has been linked to reduced atrial fibrillation burden and favourable haemodynamics.

**Purpose:** To compare procedural parameters, atrial thresholds, complication rates, and atrial arrhythmia outcomes between BB and RA pacing.

### Methods

- Retrospective single center study
- Consecutive patients with sinus node dysfunction undergoing atrial lead implantation
- Oct 2022–Dec 2025

### Results

220 patients: 175 RA and 45 BB

Mean follow-up (days): 838 ± 431 (RA) vs 160 ± 119 (BB)

Variable	RA (n=175)	BB (n=45)
Procedure time (min)	66.9 ± 30.2	81.0 ± 25.1
Atrial undersensing (%)	6.7%	8.1%
Rise in capture threshold (%)	4.7%	8.9%
Atrial pacing (%)	51.9 ± 34.6	58.5 ± 34.7
Pacing burden >20% (%)	74.0%	79.5%
Procedure-related complications (%)	2.9% (5 events)	0%
Atrial arrhythmias (%)	<b>59.8%</b>	<b>33.3%</b>

### Conclusion

BB pacing is **safe** and **feasible**, with comparable lead performance and low complication rates. Despite longer procedural times, BB pacing was associated with a **lower incidence of atrial arrhythmias**.

