

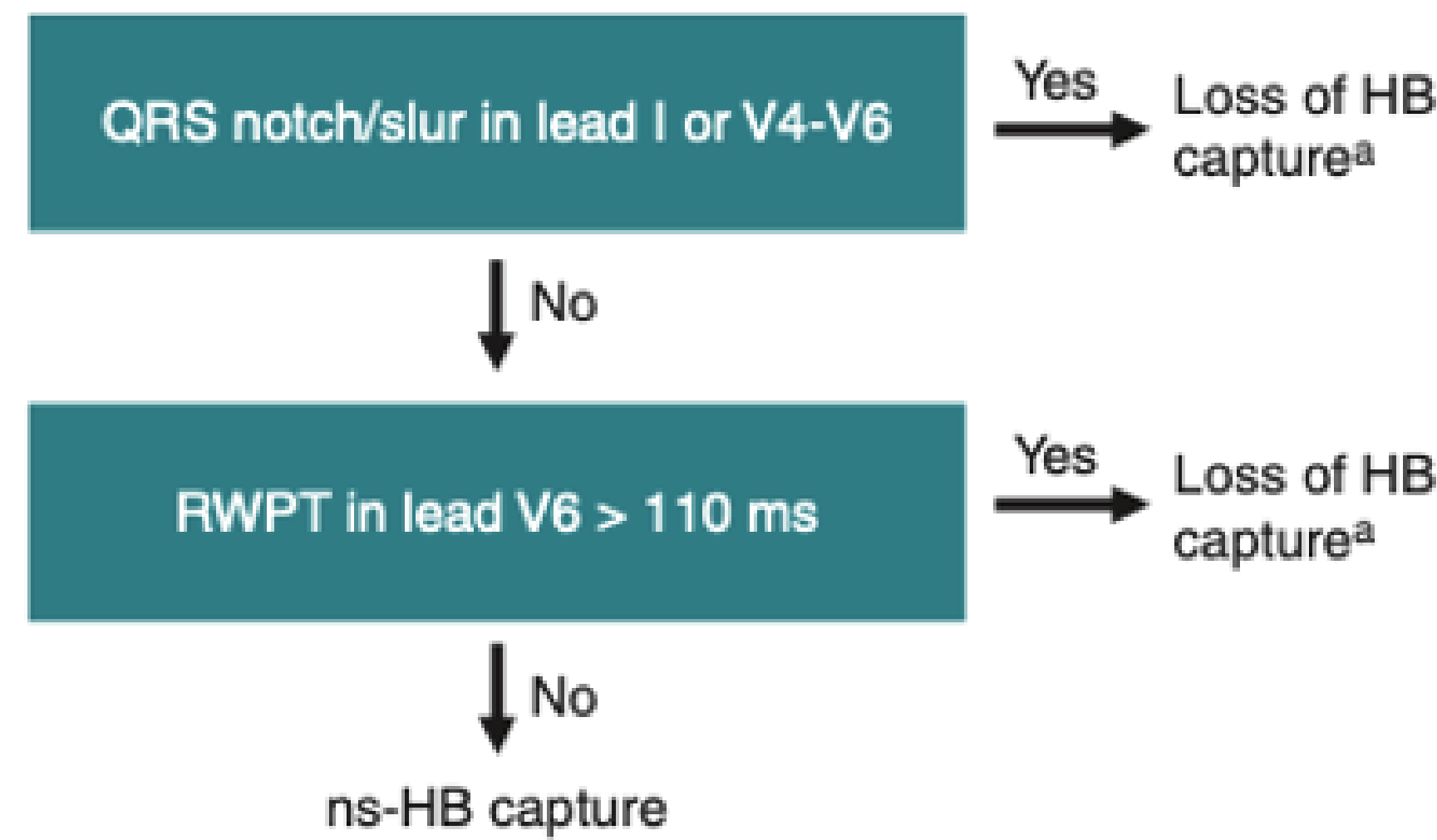
Background

- His bundle pacing (HBP) is a popular technique to deliver physiological pacing and has the potential to mitigate the adverse consequences of chronic right ventricular pacing.
- Successful HBP is defined as achievement of selective or nonselective His bundle capture.
- Septal or right ventricular (RV) capture is defined as unsuccessful HBP given the loss of intended effect of conduction system capture.
- However, there are limited data on long-term pacing morphology on electrocardiograms (ECG) post successful implantation of HBP.

Methods

- A retrospective study at Virginia Commonwealth University was designed to evaluate the pacing morphology on ECGs at implantation and at follow-up visits among patients with HBP leads.
- Consecutive HBP leads implanted from January 2014 to January 2019 at our center were analyzed.
- A Medtronic (Minneapolis, MN, USA) model 3830 lumenless, 4.1 Fr, active helix pacing lead was used in all cases.
- Loss of His bundle capture was diagnosed when there was a notch/slur/plateau in lead I, V4-V6, or when V6 R-wave peak time was >110 ms based on published criteria.
- Inclusion criteria: patients with successful HBP implantation who had ECGs recorded during follow-up visits.
- Primary endpoint was a change in pacing morphology at follow-up visits comparing to at implantation.

Algorithm for the ECG Diagnosis of Loss of HB Capture



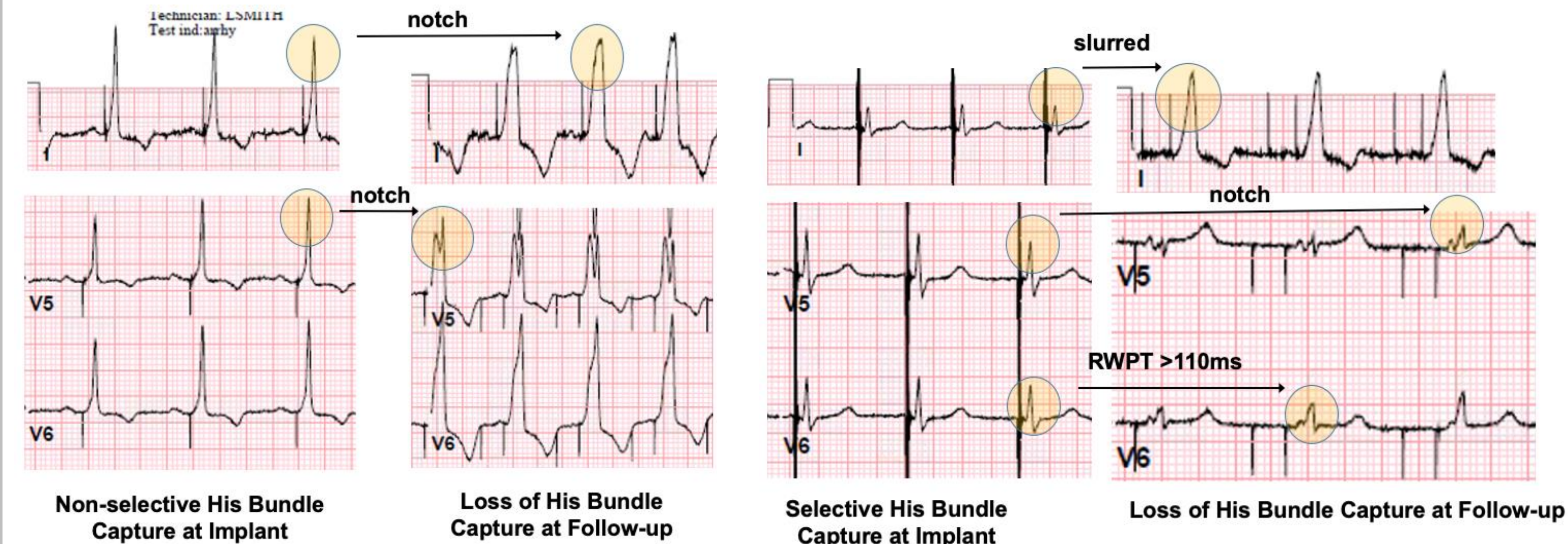
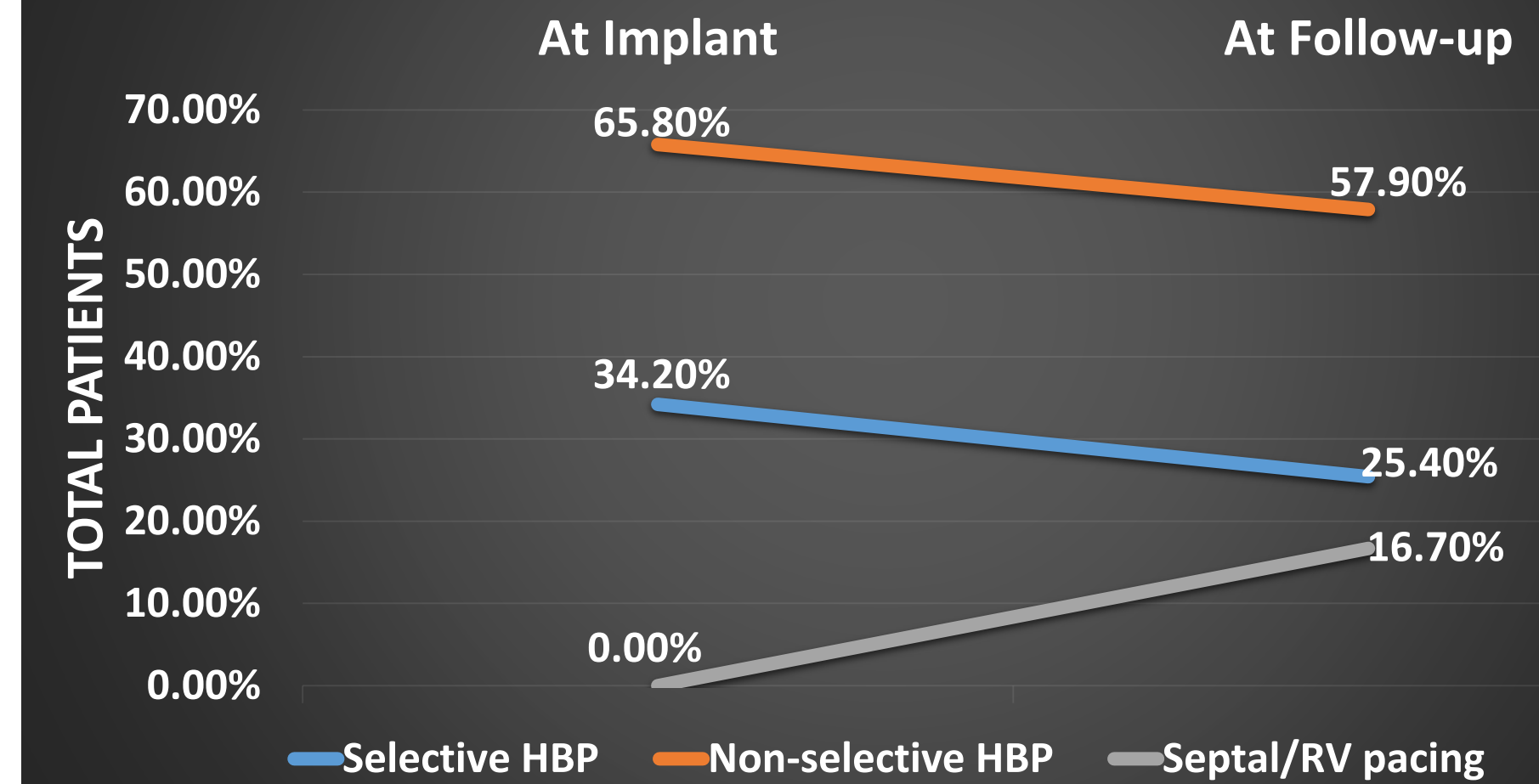
Jastrzebski et al. Electrocardiographic characterization of non-selective His-bundle pacing: validation of novel diagnostic criteria. *Europace* 2019. HB, His-bundle; ns-HB, non-selective His-bundle; RWPT, R-wave peak time. ^a Lack/loss of left intraventricular conduction disturbance correction should also be considered.

Baseline Characteristics

Number of patients	228
Mean age, years	69 ± 15
Gender, male	139 (61%)
Mean follow-up duration (years)	1.43 ± 1.29
Baseline QRS duration (ms)	108 ± 29
Infra-nodal conduction disease	
RBBB	33 (14%)
LBBB	19 (8%)
IVCD	17 (7%)
QRS duration > 150 ms	27 (12%)

Results

Pacing Morphology Post-Successful HBP Implantation



Conclusions

- Despite successful His bundle capture (selective or non-selective) on ECGs at implantation, a significant proportion of patients had loss of His bundle capture at subsequent follow-up visits.
- Patients with HBP leads should get routine ECGs to document the presence or absence of His bundle capture.

References

- Marek Jastrzebski, Pawel Moskal, Karol Curila, Kamil Fijorek, Piotr Kukla, Agnieszka Bednarek, Grzegorz Kielbasa, Adam Bednarski, Adrian Baranchuk, Danuta Czarnecka, Electrocardiographic characterization of non-selective His-bundle pacing: validation of novel diagnostic criteria, *EP Europace*, Volume 21, Issue 12, December 2019, Pages 1857–1864.

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- Presenter and the remaining authors have nothing to disclose. Please forward questions to Chau N. Vo at Chau.Vo@vcuhealth.org.