**INNOVATIVE P-WAVE DETECTION FOR DISCRIMINATION BETWEEN VENTRICULAR AND SUPRAVENTRICULAR TACHYCARDIA IN SINGLE-CHAMBER ICDS: IS THE P-WAVE INVISIBLE DURING TACHYCARDIA?**

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*Aims*: Differentiation between supraventricular tachycardia (SVT) and ventricular tachycardia (VT) remains a substantial clinical challenge in patients with single-chamber implantable cardioverter-defibrillators (ICDs) due to absence of visible P waves. Innovative optimization of intrathoracic electrogram (EGM) configuration will facilitate P-wave detection and rhythm differentiation during tachycardia.

*Methods and results*: Innovative optimization of EGM configuration was originally performed to improve patient care. In this retrospective cohort study, we examined our database for records of 140 consecutive patients undergoing single-chamber ICD implantation. During the follow-ups of 61 included patients with optimized EGM configuration, 27 patients were identified to have VT and/or SVT. EGMs in the Can (generator) to superior vena cava (Can–SVC) configuration were compared with those conventionally from the Can to right ventricular coil (Can–RV coil) source in the same patients. In Can–SVC EGMs, the ratio of P/QRS amplitude was 14-fold higher (0.57+0.08 vs. 0.04+0.00, P , 0.001) compared with those in Can–RV coil EGMs during sinus rhythm. With Can–SVC configuration, the odds of atrioventricular dissociation detection in patients with VT was increased 15-fold (61.9% vs. 9.5% with Can-RV coil; odds ratio, 15.4; 95% confidence interval, 2.8 to 84.7; P ¼ 0.0009). In patients with SVT, P-waves or

retrograde P-waves were markedly more identifiable in Can–SVC configuration compared with Can–RV coil (odds ratio, 40; 95% confidence interval, 3.6 to 447.1; P ¼ 0.0010).

*Conclusion*: P-wave recognition by optimizing EGM configuration provides a novel diagnostic tool for differentiation between VT and SVT in single-chamber ICDs. A potential discrimination algorithm would provide a cost-effective approach to improving the qualitative outcomes.