Conclusion: Patients in the UNTOUCHED trial with SMART Pass (SP) consistently ON had significantly fewer inappropriate shocks. SP status had no impact on appropriate therapy for VT/VF or complications.

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INAPPROPRIATELY DELAYED THERAPIES FOR VENTRICULAR ARRYTHMIAS IN BIOTRONIK IMPLANTABLE CARDIOVERTER DEFIBRILLATORS

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Background: Implantable cardioverter defibrillators (ICD) are typically programmed with multiple treatment zones and discriminators to minimize inappropriate therapies for supraventricular tachycardia while still delivering life-saving therapies for ventricular tachycardia (VT) and fibrillation (VF). Biotronik ICDs freeze the VT counters when tachycardia is in the VF zone due to lack of discriminators in the VF zone, which may result in an inappropriate delay in tachycardia detection.

Objective: To assess the incidence of inappropriately delayed therapies for ventricular arrhythmias in Biotronik ICDs.

Methods: Patients with Biotronik ICDs were identified from four Veterans Affairs facilities. Patient information and device tracings for patients with transmission for any (i.e., appropriate or inappropriate) ICD therapies were examined to assess for delayed tachycardia detection.

Results: Among 52 veteran patients with Biotronik ICDs, 7 (13%) experienced ICD therapy. Four patients had ICD therapy for ventricular arrhythmias, two of whom experienced an inappropriate delay in VT/VF detection due to the tachycardia rate oscillating between the VT and VF treatment zones. One ICD was an Acticor 7 HF-T QP cardiac resynchronization therapy ICD with a VT treatment zone at 188 beats per minute (bpm) and VF treatment zone at 240 bpm. The delay in tachycardia detection due to suspension of the VT counters during VF was 10 seconds with an overall VF time of 31 seconds before ICD shock (figure). The other was an Intica 7 VR-T DX with a VDD right ventricular (RV) lead (RV lead with atrial sensing) with a VT treatment zone at 171 bpm and VF treatment zone of 214 bpm with a tachycardia detection delayed by 1.6 seconds due to oscillation between the VT and VF treatment zones.

Conclusion: Because contemporary Biotronik ICDs freeze the VT counters when tachycardia is in the VF zone, ICD therapies can be inappropriately delayed when the tachycardia oscillates between the VT and VF zones. Programming short detection intervals in the VT zone may be necessary to avoid a significant delay in life-threatening ventricular arrhythmia detection and therapy.