No Difference in ATP Success for Terminating Monomorphic VT Between Primary and Secondary Prevention Patients

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Introduction : Anti-tachycardia Pacing (ATP) success rate has been shown to be between 50 and >90% successful in different studies depending on episode rate, time to detection and whether analysis is limited to only episodes adjudicated as monomorphic VT (MVT). Older studies showed that VT/VF event rates were higher for secondary prevention compared to primary prevention patients with similar ATP success. In the modern era with improved medical therapy, little data exists on ATP success stratified by indication. We re-evaluated the ATP success rate for terminating MVT using the PainFree SST clinical trial where all VT/VF episodes were adjudicated by an independent Episode Review Committee.

Methods : Ventricular tachycardia episodes that were classified as MVT were included for the analysis. ATP success was defined as MVT episodes terminated by ATP. ATP success rate and its 95% confidence interval (CI) were calculated for specific device types, indications and episode detection zones using the Generalized Estimating Equations (GEE) method.

Result : Of the 2770 enrolled patients (79% male, average age 65 years), 1071 (39%) were implanted with an ICD and 1699 (61%) were implanted with a CRT-D system; 1917 (69%) were reported as primary prevention and 847 (31%) were secondary prevention patients. Of 1917 primary prevention patients, 160 (8.3%) had 631 ATP treated MVT for which ATP was successful 76.8% (95% CI: 71.2%-81.6%). Of 847 secondary prevention patients, 212 (25.0%) had 1616 ATP treated MVT for which ATP was successful 84.3% (95% CI: 80.6%-87.5%). The difference in ATP success rate between primary and secondary prevention patients was not statistically significant (p=0.14). ATP was successful 89.0%, 72.4% and 67.9% in the VT, FVT and VF zones, respectively (p=0.0001).

Conclusion : Though VT/VF episodes are more common in secondary vs primary prevention patients, ATP success rate is not significantly different between the two groups. On the other hand, ATP success rate differs significantly by zones (rate in order: VT>FVT>VF).