**SYSTEMATIC ANALYSIS OF FAILED ATP IN AICD TO ACHIEVE RHYTHM IDENTIFICATION**

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Introduction: Inappropriate therapies from AICDs continue despite the multitude of improvements in manufacturers’ algorithms. Here we propose a systematic analysis of “failed” antitachycardia pacing (ATP) to enhance identification of the underlying rhythm disorder. The method uses standard electrophysiology principles that are not well known in the device/heart failure specialists’ community.

Method:Step 1 - measure the interval from the last ATP beat to the next ventricular sensed event (absolute post pacing interval, aPPI). An aPPI <615ms is highly suggestive of ventricular tachycardia, whereas an aPPI >615ms is more indicative of a non-reentrant supraventricular rhythm. Step 2 – assess the pattern of ventricular (V) and atrial (A) sensed events including the last beat of the ATP salvo. If the pattern is VAAV, then atrial tachycardia is the most likely rhythm. Observation of VAVA pattern is more suggestive of re-entrant rhythm involving the node. Step 3 – as per the figure (i) subtract the tachycardia cycle length (TCL) from the aPPI (PPI-TCL) and (ii) subtract the interval between a ventricular sensed event to the subsequent atrial sensed event during tachycardia from the interval between the last ATP beat (Vp) to the subsequent atrial sensed event (VpAs – VsAs). PPI-TCL < 115 ms and VpAs-VsAs <85ms suggest an accessory pathway, whilst measurements greater than these suggest that AVNRT is more probable as in the figure.

Conclusion:Incorporation of this systematic analysis for “failed” ATP episodes in device clinic may help to guide future programming alterations and medication changes in a more knowledgeable fashion.

