

Value of the Signal-Averaged ECG in Supraventricular Tachycardia Diagnosis

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Abstract

Background: We hypothesized that signal averaged ECG during tachycardia would facilitate P wave recognition and assist in SVT diagnosis. P waves adjacent to the QRS during tachycardia would lengthen the filtered QRS and be recognized by subtracting QRS duration during sinus rhythm from that of tachycardia. **Aims:** to assess the feasibility of SaECG during SVT; to correlate the difference between the filtered QRS duration in SVT and sinus rhythm ($\Delta fQRSd$) with the endocardial VA time; **Methods & Results:** Patients referred for an EP study and ablation of any SVT were included. A SAECG was acquired during SVT and compared with another during SR. 40 patients were included, 20 had AVNRT and 20 AVRT. For AVNRT, the P wave was detected as a pseudo-late potential in 16 patients. In 4 patients, P wave was invisible and presumed within the confines of the QRS. The mean $\Delta fQRSd$ was 20?17 ms and the VA time was 14?15 ms. For AVRT a distinct P wave separated from the QRS was detected in all patients. The $\Delta fQRSd$ was 107?42ms and the VA time was 96?31 ms. $\Delta fQRSd$ was longer during AVRT than AVNRT ($p<0.0001$). Over all, the $\Delta fQRSd$ correlated with the longest VA time ($R=0.796$). Motion artifact and sensing of T waves during tachycardia were 2 confounders. **Conclusion:** SaECG provides a rapid adjunct to the 12 lead ECG and is capable of identifying P waves and facilitating diagnosis of SVT mechanism.

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