

Optimal electrogram voltage recording technique for detecting the acute ablative tissue injury in the human right atrium.

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摘要

Abstract

BACKGROUND: The optimal recording technique of the electrogram voltage for detecting abnormal atrial tissue remains unclear. The aim of this study was to compare the impact of various recording techniques on the electrogram voltage after the delivery of ablation therapy in the human right atrium (RA). **MATERIAL AND METHODS:** Noncontact mapping was performed in 27 patients with typical atrial flutter (mean age = 63 +/- 16, males = 20). Noncontact unipolar and bipolar electrograms were obtained before and after cavotricuspid isthmus (CTI) linear ablation. All unipolar electrograms were acquired with both wide-band filtering (0.5-300 Hz) and narrow-band filtering (32-300 Hz). The unipolar voltage measurements included both the peak-to-peak voltage and peak-negative voltage (PNV) for both filter settings. **RESULTS:** A comparison of the electrogram voltage along the ablation line before and after the ablation demonstrated a greater reduction in the unipolar PNV with wide-band filtering (70 +/- 24%) than in any of the other recording modalities (P = 0.03). It was the most sensitive and specific recording technique to predict conduction block (cut-off Value 0.35 mV; sensitivity = 94.4% and specificity = 80%). A comparison of the electrogram voltage between the ablated atrial myocardium and nearby nonablated myocardium showed that the unipolar PNV with the wide-band filtering remained the most sensitive method to detect the acute ablative tissue injury, whereas the peak-to-peak bipolar voltage was the most specific method. **CONCLUSION:** The noncontact unipolar electrogram using the PNV with wide-band filter settings (0.5-300 Hz) provided the most sensitive recording technique for detecting acute ablative tissue injury.