

Impact of transisthmus linear ablation of typical atrial flutter on coronary sinus activation time

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摘要

Abstract

Complete or incomplete bidirectional isthmus conduction block after linear ablation of atrial flutter is difficult to interpret without detailed multiple electrodes mapping along the tricuspid annulus and the low right atrial isthmus area. The influence of isthmus block on the intraatrial septal and coronary sinus activation has not been assessed by endocardial mapping. This study was designed to analyze the intraatrial and interatrial activation times in a retrospective fashion to investigate (1) whether isthmus conduction block can change the coronary sinus activation sequence during low lateral right atrial pacing, and (2) the correlation between change of coronary sinus activation time and isthmus conduction block. Sixty-five consecutive patients (mean age, 57 +/- 18 years) with clinically documented typical atrial flutter were studied. A 20-pole "Halo" catheter was placed around the tricuspid annulus including the entire low right atrial isthmus to verify complete bidirectional isthmus block. Activation time from ostium to distal coronary sinus (OCS-->DCS), and interatrial septum and isthmus activation times during right atrial pacing were analyzed and compared before and after incomplete or complete isthmus block. Complete bidirectional isthmus block was achieved in 50 (77%) patients. During low lateral right atrial pacing, linear ablation at low right atrial isthmus results in a significant delay of activation in all coronary sinus recording sites with greater extent at the ostium area without influence on interatrial septum activation in complete and incomplete isthmus conduction block. The difference of the OCS-->DCS interval before and after ablation, delta (OCS-->DCS), was well correlated with results of isthmus conduction block and significantly longer in patients with complete than those with incomplete isthmus block (34 +/- 11 vs 11 +/- 8 ms, P < 0.001), thereby allowing a value of 20 ms as a discriminative parameter to differentiate incomplete (< 20 ms) from complete (> or = 20 ms) isthmus counterclockwise conduction block with a sensitivity of 96% and a specificity of 88%. In conclusion, creation of a line of block at the inferior vena cava-tricuspid annulus isthmus could change coronary sinus activation sequence during low lateral right atrial pacing in sinus rhythm. The change of coronary sinus activation time after linear ablation, delta (OCS-->DCS), was well correlated with isthmus conduction block by using a value > or = 20 ms to discern complete counterclockwise isthmus block..