Reasoned argument for the cessation of radiofrequency delivery should atrial fibrillation start during slow pathway ablation

If atrial fibrillation is triggered during slow pathway ablation, the evidence suggests that it would be incautious to continue radiofrequency (RF) energy delivery. There are no written rules concerning this matter but an experienced electrophysiologist familiar with the literature should be able to elicit this conclusion. The following is an example of how it may be deduced from published evidence.

Part 1: The importance of accelerated junctional rhythm during slow pathway ablation

(i) Radiofrequency energy slow pathway ablation is the standard method of catheter interventional treatment for atrioventricular (AV) nodal tachycardia.

(ii) During RF energy delivery (ablation), at the successful site of slow pathway ablation, the emergence of ‘accelerated junctional rhythm’ is very common.1,2

(iii) Accelerated junctional rhythm during slow pathway is associated with a successful outcome and is used as a marker of the correct location of the slow pathway.3

(iv) Accelerated junctional rhythm is diagnosed by observation of the electrocardiogram/electrograms. It is characterized by ventricular depolarization (QRS complex) not preceded by an atrial depolarization (P-wave).3

(v) During atrial fibrillation, P-waves are absent.

(vi) It follows that accelerated junctional rhythm cannot be diagnosed during atrial fibrillation.

Part 2: The importance of ventriculo-atrial conduction during accelerated junctional rhythm

(i) During accelerated junctional rhythm (induced by RF energy for slow pathway ablation), it is important to monitor ventriculo-atrial (VA) conduction.2,4

(ii) The loss of VA conduction during accelerated junctional rhythm is a marker for impending inadvertent fast pathway ablation and therefore AV block.

(iii) With observation of VA block during accelerated junctional rhythm, RF should be terminated immediately.2,4

(iv) During atrial fibrillation, VA conduction to the atria cannot be detected.

(v) It follows that VA block cannot be diagnosed during atrial fibrillation.

The arguments laid out above clearly show why RF energy delivery should be terminated immediately upon the development of atrial fibrillation during slow pathway ablation.

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References


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