AV Block during Radiofrequency Ablation of Atrial Flutter: Incidence, Mechanism and Implications

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Objectives: To evaluate the incidence, mechanism and clinical implications of atrioventricular (AV) block during catheter radiofrequency (RF) ablation of the cavotricuspid isthmus (CTI).

Background: Although RF ablation of atrial flutter is the most frequently performed ablation procedure, data on the incidence and significance of an AV block occurring during the procedure are scarce.

Methods: Consecutive patients (n = 845, 73.5% male) undergoing CTI ablation (913 procedures) between 1998-2010 were studied. Data on the occurrence of complete AV block (lasting ≥3 seconds) during the procedure were prospectively collected.

Results: Sixteen (1.9%) patients experienced AV block, 12 during delivery of RF pulses (Group 1) and 4 (Group 2) during manipulation of catheters in the cardiac chambers. The AV block was short-lasting (<1 minute), located in the AV node and associated with septal isthmus RF lines in 11 Group 1 patients. It was long-lasting and led to pacemaker implantation in 1 Group 1 patient. AV blocks had an infranodal location in the 4 Group 2 patients, all of whom had a preexisting left bundle branch block (LBBB). One Group 2 patient had an AV block during his 2 ablation procedures. Permanent pacemakers were implanted in 5 (0.6%) patients (1 from Group 1 and 4 from Group 4).

Conclusions: AV blocks requiring pacemaker implantation following administration of RF pulses at the CTI are rare (0.12%). The occurrence rate of AV blocks related to the procedure and requiring pacemaker implantation is, however, not negligible (0.6%) and mostly affects patients with a preexisting LBBB.