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10:45

Catheter Ablation of Accessory Atrioventricular Pathways Using Radiofrequency Energy

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Seventy-one consecutive patients (37F,34M, 38±16 years) with 79 accessory pathways (AP) underwent an attempt at catheter ablation using radiofrequency energy. AP locations were left free wall in 54, posteroseptal in 14, right free wall in 6, anteroseptal in 3, and midseptal in 2 patients. Following an accelerated mapping procedure aimed at localizing the site of earliest retrograde or antegrade activation with a 4mm-tipped deflectable 7Fr electrode catheter, 36 watts of RF energy was delivered for 10-20 seconds. Left-sided pathways were approached from the ventricular side of the mitral annulus and right sided pathways were approached from the atrial side of the tricuspid annulus. Identification of an AP potential at a given site was not a criterion for RF energy delivery. Results: Sixty-nine of 79 APs(87%) were successfully ablated and 60 of 71 pts(85%) had all APs ablated. Twelve patients underwent two ablation sessions. The mean number of RF lesions which were delivered was 6.5±6 and the mean duration of successful procedures was 125±55 minutes. No patient demonstrated a rise in CKMB. Complications included a pelvic hematoma in 1 patient and an acute circumflex coronary artery occlusion due to incorrect catheter placement in a second patient which was reversed by angioplasty. In conclusion, using an abbreviated mapping protocol, catheter ablation of accessory pathways using radiofrequency energy can be performed safely and expeditiously in a large percentage of patients.

11:00

EFFICACY AND SAFETY OF CATHETER ABLATION USING RADIOFREQUENCY ENERGY IN PATIENTS WITH ACCESSORY PATHWAYS

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Catheter ablation using radiofrequency energy (RF) eliminated conduction in 26 of 30 accessory pathways (AP) in 24 of 28 (86%) pts (ages 7 to 64 yrs, mean 27); one pt required a second attempt. There were 20 left (1 anterolateral, 7 lateral, 5 posterolateral, 7 posterior) and 6 right (2 posteroseptal, 1 posterior, 2 posterolateral, 1 lateral) APs successfully ablated. Two pts had the permanent form of junctional reciprocating tachycardia (PJRT; 1 right and 1 left AP), and 1 pt had previously unsuccessful surgery. The 5 failures were among the first 8 pts, and 4 of them had multiple APs. RF pulses to achieve successful ablation required 1-30 (mean 10.6) pulses per pt at 56 volts and 691 mA (means). The successful RF pulse eliminated AP conduction in 0.3-9.2 (mean 2.6) seconds. CPK rises were minimal and followup echocardiogram showed no new wall motion abnormalities. Complications were pulmonary embolus (1 pt) and injury to a congenitally fenestrated aortic valve during LV mapping (1 pt). Only 1 pt has had spontaneous arrhythmia (atrial fibrillation without AP conduction) during followup (1-20 wks, mean 8.0). At 6 wk EP study, 2 pts had inducible sustained AV nodal reentry and 1 pt had recurrent AP conduction. We conclude that RF catheter ablation of APs is a safe and effective technique that should be offered as early therapy for WPW pts. A distinct early learning curve and multiple APs increase the difficulty of the technique.

11:15

OPTIMAL ELECTRODE SITE FOR RADIOFREQUENCY ABLATION OF POSTEROSEPTAL ACCESSORY AV PATHWAYS

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Optimal electrode placement for radiofrequency (RF) catheter ablation of posteroseptal (PS) accessory AV pathways (AP) is not firmly established. RF ablation of PS AP was successfully performed in 27/27 pts. RF energy (usually 30-35 watts for 20-40 sec) was delivered to a 7F 4mm catheter tip electrode. Three separate electrode locations were identified for successful ablation:

1) 18 pts: electrode was positioned against the tricuspid annulus at the level of (or slightly below) the coronary sinus (CS) ostium. Earliest antegrade ventricular activation (Ant Act) and antegrade AP potential were recorded at this site while earliest retrograde atrial activation (Ret Act) and retrograde AP potential were localized to the CS <2 cm from ostium.

2) 5 pts: Ant Act was also recorded along PS tricuspid annulus with Ret Act more distal in CS (2.5-3.0 cm from os); or in 1 pt, Ret Act was recorded simultaneously at tricuspid annulus and posterolateral CS without recording AP potential at either site. RF at tricuspid annulus resulted in only transient AP block. Permanent ablation was achieved in all 5 pts from posterior LV beneath the mitral leaflet. AP potential was recorded from LV in 5/5 pts.

3) 4 pts: ablation was successful at the tricuspid annulus between the CS and His bundle. Earliest Ret Act and AP potential were recorded at this site.

CONCLUSIONS: Most PS APs can be ablated by RF at the tricuspid annulus. An LV site should be used if Ant Act and Ret Act are widely separated.

11:30

EFFECTIVENESS OF DOUBLE SHOCK IN CATHETER ABLATION OF HIS BUNDLE AND ACCESSORY PATHWAY

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Double discharge can be used in catheter ablation (CA) with direct current energy. We performed consecutive two shocks (TS) and analyzed whether this method is more effective than single shock (SS) in 71 consecutive patients (pts) who underwent CA of accessory pathway or His bundle (AP:n=33; HB:n=38). In TS method, the first shock was triggered by QRS and the second was delivered within 10 seconds after the first shock, during asystolic pause, to get better contact between catheter and endocardium.

RESULTS : Thirty-three pts with CA of AP received 114 shocks (65 SS and 49 TS) and 38 pts with CA of HB received 129 shocks (117 SS and 12 TS). Success rate was higher with TS method in both ablation (AP: 31% vs 11%, $p<.03$; HB: 91% vs 22%, $p<.005$). The numbers of shocks delivered for each patient was inferior with TS method (1.1 ± 0.3 vs 2.8 ± 0.9 ; $p<.01$). There was no difference in the energy delivered at one session (594 ± 153 vs 618 ± 581 J; NS). No specific complication was observed with TS method.

CONCLUSIONS : 1) TS method seems more effective than SS method in CA of AP and HB. 2) In this series, it was possible to get better clinical results safely with less shocks by TS method.