

#### LONGTERM FOLLOW-UP AFTER TRANSCORONARY CHEMICAL ABLATION OF THE ATRIOVENTRICULAR NODE

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Transcoronary chemical ablation of the atrioventricular (AV) node using selective intracoronary injections of pure ethanol into the AV nodal coronary artery can be performed successfully with excellent short term results. The longterm follow-up, however, is still unknown. 11 Patients underwent transcoronary chemical ablation of the AV node more than 4 months ago. In all patients selective catheterization of the AV nodal artery was followed by ethanol injection (0.3 - 3.0 ml). This resulted in a complete or high degree AV block in all patients. 1/11 patients regained normal AV conduction within 24 hours. A second procedure was performed and total AV block created. 2/11 patients regained normal AV conduction after 7 and 28 days. The AV nodal artery was occluded in 1 patient and still patent in the other patient. In 9/11 patients (12 procedures) total or high degree AV block still existed after a period of 4 to 18 months (mean 9.3 months). Conclusions: 1) Transcoronary chemical ablation of the atrioventricular node results in permanent AV block in about 80% of patients. 2) Recurrence of AV conduction in our group of patients was observed within one month after the procedure.

#### RADIOFREQUENCY ABLATION OF ACCESSORY PATHWAYS

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Radiofrequency (RF) energy has been proposed to definitively treat the Wolff-Parkinson-White syndrome (WPW). However, the frequency of success of RF ablation has not been clearly defined. Radiofrequency catheter ablation was attempted in 16 consecutive patients (pts) as primary treatment for WPW. There were 9 men and 7 women (mean age  $36.5 \pm 14$  years). The accessory pathways (APs) were left freewall in 8 pts, right freewall in 3 pts, posteroseptal in 4 pts, and anteroseptal in 1 pt. For left-sided APs, the ablation catheter was positioned in the LV in apposition to a coronary sinus mapping catheter. RF energy was delivered from the distal electrode (surface area  $4 \text{ mm}^2$ ) to a dispersive pad on the back. Right-sided APs were ablated from the right ventricle. Posteroseptal APs were approached with the catheter positioned in Koch's triangle and/or the LV. Successful ablation was achieved in 8/8 left sided, 2/4 posteroseptal, and 1/3 right sided APs. Ablation of the anteroseptal AP was not attempted because of proximity to the His bundle. No complications occurred. The mean number of RF applications was 48.6 (6-20 Watts/application). The mean peak CK-MB was  $21.3 \pm 20 \text{ IU/L}$ . Over a mean follow-up period of 49 days (7-94), all pts successfully ablated have been free of arrhythmias off drugs with no return of preexcitation. Thus, RF ablation for WPW is highly effective, though the success rate is higher for left-sided than for right-sided or posteroseptal APs.

#### RADIOFREQUENCY CATHETER ABLATION OF RETROGRADE PATHWAYS IN PATIENTS WITH AV NODAL REENTRY TACHYCARDIA

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Percutaneous catheter ablation with radiofrequency (RF) current can be used to interrupt atrioventricular conduction (AVC) in patients (pts) with drug refractory AV nodal reentry tachycardia (AVNRT). The aim of this study was to prove the possibility of the selective interruption of the retrograde pathway in 10 pts with AVNRT. The catheter was positioned as close as possible to the AV node (high atrial, small His deflection). Application of the energy was titrated during AVNRT until retrograde AVC was interrupted. A modified 7 Fr catheter with large (4 mm) distal electrode and 5 mm interelectrode spacing was used. The energy was supplied by the "Osypka HAT 200" electrocoagulator. One day after the ablation the electrophysiologic study (EPS) was repeated.

Results: 3 to 11 applications of RF were applied between the distal electrode and a large skin electrode. The current intensity ranged from 81 to 1123 Ws. Selective interruption of retrograde AVC could be accomplished in all pts. Prolongation of antegrade AVC occurred (AH  $102 \pm 47 \text{ ms}$  to  $160 \pm 27 \text{ ms}$ ,  $p < 0.05$ , HV  $48 \pm 4 \text{ ms}$  to  $52 \pm 5 \text{ ms}$ , n.s.). The Wenckebach point decreased from  $184 \pm 37 \text{ b/min}$  to  $138 \pm 17 \text{ b/min}$ ,  $p < 0.05$ ). Second or third degree AV block could be avoided. Retrograde AVC returned in 2/10 pts who had a second ablation session. At follow up of 1 to 6 months all pts remained in stable sinus rhythm without antiarrhythmic drugs.

Conclusion: Ablation of the retrograde conduction by RF current is safe and feasible to cure patients with AV nodal reentrant tachycardia.

#### LONG-TERM EFFECTS OF PERCUTANEOUS TRANSCATHETER LASER BALLOON ABLATION (PTLBA) FROM THE CANINE CORONARY SINUS.

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We recently reported that PTLBA from the canine coronary sinus for the potential ablation of accessory pathways is free of immediate complications. We now report the long-term effects of this technique in 15 consecutive mongrel dogs. Two consecutive laser doses of 30 to 35W for 20 to 30 sec (totaling 1200 to 2400 J) were applied at 5 min intervals in the distal coronary sinus. After a mean follow-up of 6 weeks (range 2-7), coronary sinus angiography, coronary arteriography and left ventriculography were performed and the animals sacrificed. Mean extent of fibrotic lesion was 15 mm (range 10 to 20) length, 6 mm (range 3.5 to 9) width, and 4.5 mm (range 3 to 6.5) depth involving the coronary sinus wall, atrium and frequently the summit of the posterior left ventricular wall. In 4 dogs (27%) the coronary sinus was markedly narrowed (> 50%) due to scarring of the wall at the ablation site, but always with total angiographic reconstitution due to extensive collateral circulation. The circumflex artery and the mitral valve were intact angiographically and histologically in all animals.

Conclusions: (1) PTLBA via the coronary sinus provides a lesion that may be anatomically well-suited for left lateral accessory pathway ablation; (2) the procedure is unlikely to cause significant adverse long-term effects on the circumflex artery or mitral apparatus; and (3) while coronary sinus narrowing may occur, this does not appear to be hemodynamically significant.