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CARDIAC ARRHYTHMIAS

CAVO-TRICUSPID ISTHMUS ABLATION BY NOVEL PHOTODYNAMIC LASER CATHETER IN SWINE HEART IN VIVO

ACC Poster Contributions
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Background: Mechanism of common catheter ablation had been temperature-dependent coagulation of arrhythmogenic myocardium. Photodynamic catheter ablation (PDCA) can eliminate arrhythmic substrate not by temperature-dependent coagulation of myocardium but by photosensitization reaction-induced cytotoxicity. Thus, PDCA is contact independent, pop (hydrovolcanic explosion) free, edema free, and thrombus free catheter ablation. In the present study, the feasibility of the PDCA in vivo was examined.

Methods: Halo catheter was located in coronary sinus ostium (CSOS) to tricuspid annulus (TA) of right atrium of anesthetized swine (25-35kg; n=5, Fig). At 30 min after intravenous administration of talaporfin (2.5~5 mg/kg), 7-Fr deflectable laser catheter (Fig) was directed to the cavo-tricuspid isthmus via femoral vein and laser light was illuminated under CSOS-pacing. Delay and/or change in conduction sequence were monitored to evaluate achievement of conduction blockade.

Results: Successfully conduction blockade was made in every animals (Fig).

Conclusions: PDCA was effective in vivo. PDCA can be a new device for treatment of cardiac arrhythmias.