Abstracts

RF and Microwave Ablation for the Treatment of Ventricular Tachycardia

R.M. Rosenbaum, A.J. Greenspon, S. Hsu, P. Walinsky and A. Rosen. "RF and Microwave Ablation for the Treatment of Ventricular Tachycardia." 1993 MTT-S International Microwave Symposium Digest 93.2 (1993 Vol. II [MWSYM]): 1155-1158.

Current radio frequency (RF) ablation technology is limited by small lesion size. In order to enhance the size of RF-induced LV endocardial lesions we evaluated the effects of an enlarged distal electrode tip and increased RF power on lesion volume. Steerable electrode catheters with distal electrode tips of 4-12mm were studied in anesthetized dogs at power settings of 20-100 watts. Temperature (T) was continuously monitored from a thermistor located at the tip of the catheter. RF energy (500kHZ, unmodulated) was applied between the tip of the catheter and a large skin electrode at four separate LV sites in each animal. Microwave ablation catheters with whip and helical antennae configurations were also tested with network analysis, temperature profiling in a phantom model and in vivo. RF lesion volume increased with increasing delivered power and enlarged tip size. Average tip T correlated with measured lesion volume (r=0.66). Microwave catheters produced volume heating but the magnitude of heating was less than that observed for RF catheters. Catheter ablation of ventricular tachycardia may be enhanced by this technology.

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