Flutter Ablation With An Irrigated Catheter Using Microwave Radiometry Sensing Technology: first report in men.

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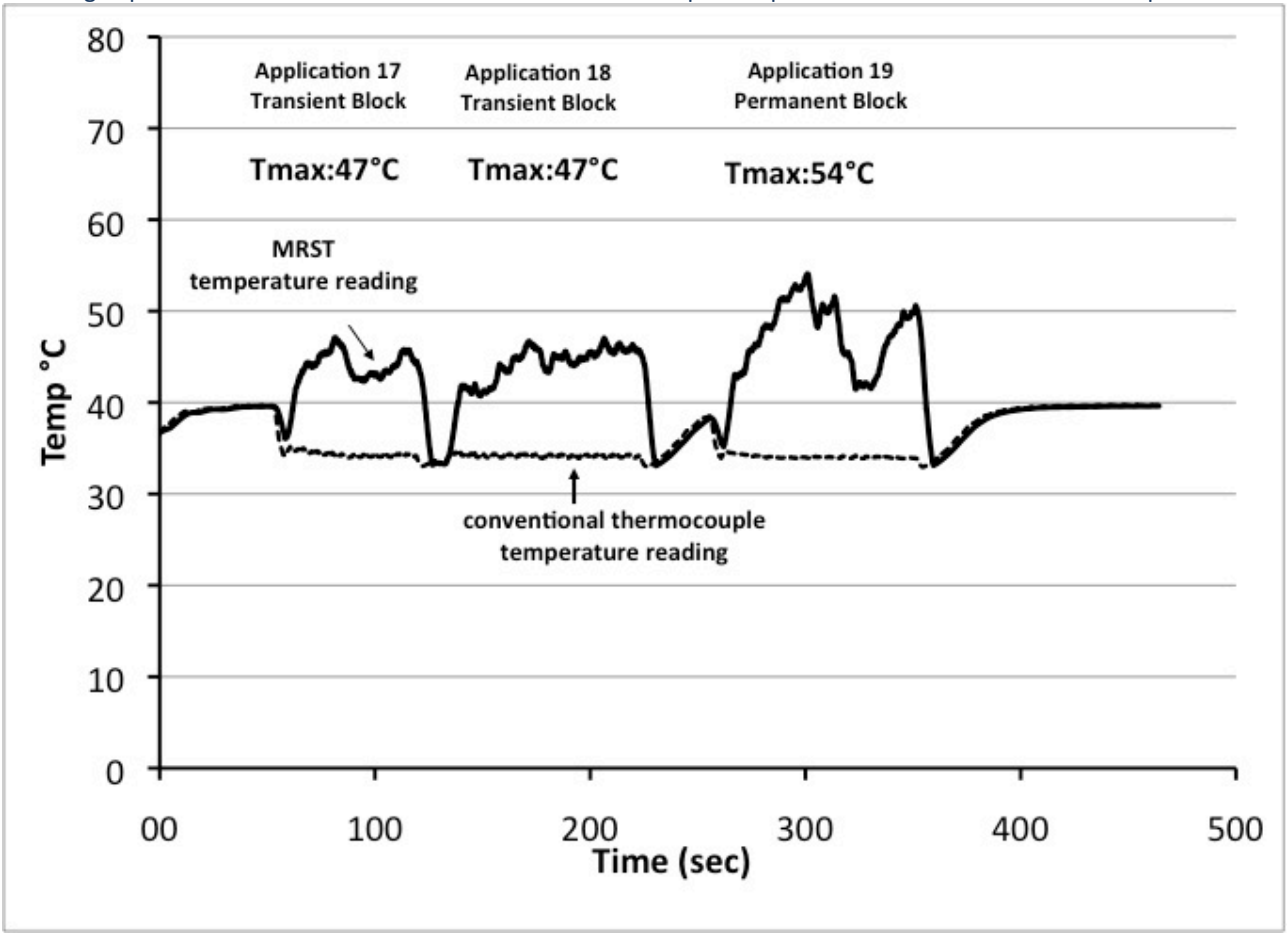
Introduction:
The assessment of tissue temperatures during radiofrequency (RF) delivery is essential to achieve predictable lesions and to avoid excess heating. Microwave radiometry sensing technology (MRST) measures and interprets microwaves emitted from heated tissue and enables accurate tissue temperature measurements even in the presence of saline-cooling. We report the first human experience of ablation with a novel irrigated catheter (Tempasure™, Advanced Cardiac Therapeutics) equipped with MRST.

Methods:
A 60-year old male patient with typical counterclockwise underwent cavotricuspidisthmus ablation with a 3,5 mm Tempasure catheter system with fixed power settings (40 watt) and a high irrigation flow (30ml/min). Electrograms and conventional fluoroscopy were used to guide RF delivery.

Results:
Bidirectional block was obtained after 19 RF applications (total ablation time 1156sec, procedure time 120min, fluoroscopy time 17min). Tissue temperature remained below 55°C in 36% of the applications but reached more then 55°C in 64% of the cases. No pops occurred. The figure depicts radiometer performance during the last 3 applications delivered at the same site. During RF application 17 and 18 only transient isthmus block was obtained; maximum temperature did not exceed 47 °C. In contrast, during RF application 19 a maximum temperature of 54°C was reached resulting in permanent isthmus block. Conventional thermocouple temperature measurements were comparable.



Conclusions: Cavotricuspid isthmus ablation is feasible with Tempasure catheter system. This first report suggests that microwave radiometry sensing technology provides real-time feedback on the temperature obtained during RF delivery within the tissue reflecting trough lesion formation. Therefore, this technology has the potential to enhance ablation outcomes.