

Essential elements to increase efficient use of remote magnetic navigation

Use in conjunction with established best practices in EP ablation to evaluate outcomes

AVNRT Ablation Procedures

Set Up

- A short 8F sheath can be used with the magnetic catheter which will exit the tip of a straight short sheath without concern that the distal 1.5cm stiff section of the catheter will be damaged.
- Place the tip of the catheter in the body of the right atrium with all three magnets above the RA/IVC junction.

Mapping

- Apply the Navigant™ HIS preset and advance the catheter using 3mm CAS step size until a HIS signal is seen.

- Use the *Navigant* keypad with vector set to 1° and CAS step size set to 1mm.



- In the *Navigant* 3D mapping window, rotate mapped geometry until the tip of the catheter is in the center of the screen. Interrogate the area in which HIS signals are seen.
- Mark the inferior margin of the HIS cloud using either the CARTO™ 3 system or Point Annotation on *Navigant*.
- Apply the *Navigant* CS ostium preset and advance the catheter to the entrance of the CS.
- Mark the CS entrance on either the CARTO 3 system or with Point Annotation on *Navigant*.
- Navigate inferior to this point along the septum until the slow pathway EGM is seen.
- Adjust the catheter tip along the pathway to the desired treatment spot.
- Apply sufficient vector perpendicular to the tissue surface to achieve tip stability. Do not apply excessive vector as the tip movements could become unpredictable.

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Treatment

- Physicians experiencing results equivalent to their manual approaches report beginning to deliver RF energy at 30 watts and increasing power as needed to achieve success.
- Adjust the catheter tip using the keypad setting above as necessary to eliminate the pathway.

Confirm Treatment Effect

- Confirm acute endpoint according to standard EP practice. Ablation History data in *Navigant* and the magnetic catheter tip can assist in this process.
- If gaps in treatment exist, use Ablation History data in *Navigant* to assist in identifying these areas. Subsequently, if using the *CARTO 3* system, employ *Navigant* automated features such as Click-and-GO, Go To Electrode, Target NavILine, and Anatomical Presets to quickly reach the gap area for further treatment.

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Mastering Micro-movements with Magnetic Catheters

If more than two vector moves are employed without associated tip response, remove the vector input(s) to eliminate high amounts of stored energy. Subsequently, retract the catheter until the attitude of the tip changes, and then re-apply the desired vector.

If more than two CAS moves are employed without associated tip response retract CAS inputs until the attitude of the tip changes, and then adjust vector to regain tip control.

CARTO 3 System FAM Mapping Resolution Settings with Magnetic Catheters

Physicians who are expert in the use of the CARTO 3 system with magnetic catheters and FAM mapping state that they prefer a FAM resolution of 16 or 17. Resolutions lower than 16 produce excessive interpolation between independent catheter positions resulting in a map that looks complete but lacks sufficient fidelity. Conversely, resolutions greater than 17 produce a high fidelity map but display many holes in the map surface unless additional time is taken to ensure all independent catheter positions are close enough to each other to fill holes. Thus, selecting a FAM resolution of 16 or 17 best supports efficiently creating a high fidelity map.

Variables Influencing Efficient Ablation with a NaviStar™ RMT ThermoCool™ Catheter (power, time, force)

- When using a magnetic catheter, the amount of force applied to the tissue remains relatively constant throughout the cardiac cycle at a median level of approximately 10 grams¹.
- With this relatively constant level of force, the remaining variables that can be adjusted are power and time. Increasing power (rather than time) is the most efficient way to heat tissue to desired temperature levels.
- During manual ablations, physicians have the ability to increase force if initial RF energy applications result in rising edema. Physicians who are expert in magnetic catheter ablation minimize risk of edema by increasing power during the **initial** delivery of RF energy.
- With more than 75,000 Stereotaxis magnetic procedures completed to date, increasing power is common best practice of physicians.

¹Nakagawa et al., 2014 AF Symposium