

# AF Think Tank

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**Technical Features Of AF  
Ablation: Is Anything  
Standard, and What  
Procedural Features Must A  
Registry Capture?**

# Database Must Capture

- Medical vs. Surgical Ablation
- Concomitant Procedures: more important for surgery, but perhaps LAA occlusion device insertion with catheter ablation in the future
- HRS Guidelines Advocate PV isolation for at least paroxysmal AF patients
- Nevertheless, should reflect the reality of clinical practice

# Technical Features: Minimum

- Form of energy: RF, HIFU, Laser, Cryoenergy
- Type of catheter: 4, 5 or 8 mm, irrigated (external or internal), balloons, mesh, etc.
- Duration of energy delivery
- Specifics of energy delivery: e.g., Power
- Sites of energy delivery: PV Antrum, CAFÉ, lines in RA, LA, CS, SVC, IVC, additional focal sites
- Additional SVT mechanisms ablated: AVNRT, AVRT, AT, RA flutter

# Technical Features: Minimum

- First, second, third, etc. procedure
- Post surgery, or prior surgical AF or catheter AF ablation
- Determinants of delivery at site. For example, ICE or venogram or some other guidance for PV isolation
- Duration/dose of fluoroscopy
- Endpoints for each ablation site: electrophysiologic, anatomic, AF or AT termination for each set of lesions. For example, MA line we need to know how checked for completeness. PV's: entrance or exit block
- Aids: ICE, MRI or ultrasound or other techniques to define catheter localization

# Ancillary Procedural Issues

- Testing to determine when procedure is finished: isoproterenol, adenosine, pacing, none
- Total procedural time
- Patient Preparation: AAD, TEE, Drugs
- Anticoagulation Strategy: Pre, Intra and Post procedure, TEE (+/-), ACT maintenance
- Anesthesia/Sedation: General, conscious sedation
- Esophageal Monitoring, Phrenic nerve Monitoring

## • Required:

- *Circumferential anatomical approach to isolate all PVs*
- *Electrophysiological Confirmation of Entrance Block into PVs (procedural endpoint)*
- *CARTO electroanatomical mapping*

## • Optional:

- *Isolation of the Superior Vena Cava*
- *Ablation of non-PV foci that initiate AF*
- *LA Linear Lesions if AF can be induced*
- *Left Inferior PV-Mitral Isthmus if LA flutter induced*
- *Cavo-Tricuspid Isthmus (CTI) if RA flutter induced*

**Thermocool Data from FDA, presented by D. Wilber**

# Procedural Techniques: Complications

- Acute: During procedure
- Pre-discharge
- One Month
- Long term: e.g., LA flutter, etc.
- Major: Potentially life threatening: death, stroke, AV fistula, etc.
- Minor: Hematoma, chest pain due to pericarditis



# Reported Complications of AF Ablation

- Stroke
- Left atrial flutter
- Pericardial tamponade
- PV Stenosis / Occlusion
- Femoral pseudoaneurysm
- AV fistula
- Retroperitoneal hemorrhage
- Atrio-esophageal fistula
- Phrenic nerve paralysis
- Sinus node injury
- MV avulsion
- ARDS
- Transfusion reactions
- Eso-pericardial fistula
- Aortic dissection
- Sepsis
- DIC
- Radiation burn
- Air embolism
- Recurrent Laryngeal N Paralysis
- Hemothorax
- AV block
- Coronary artery occlusion
- SVC occlusion/stenosis
- Left atrial edema / CHF
- Pericarditis
- Death

# Summary

- Currently, little information available
- Critical, to compare methods, and outcomes, as well as safety/efficacy ratio
- How much or how little ablation or even what type is needed, especially for persistent AF patients