Atrial Fibrillation: 2017 Update & Specialty Clinic Focus

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SPONTANEOUS INITIATION OF ATRIAL FIBRILLATION BY ECTOPIC BEATS ORIGINATING IN THE PULMONARY VEINS

Michel Haïssaguerre, M.D., Pierre Jaïs, M.D., Dipen C. Shah, M.D., Atsushi Takahashi, M.D., Mélèze Hocini, M.D., Gilles Quiniou, M.D., Stéphane Garrigue, M.D., Alain Le Mouroux, M.D., Philippe Le Métayer, M.D., and Jacques Clémenty, M.D.

NEJM 1998
Pulmonary Vein Sleeve
LA/RA Foci triggering AF

![Diagram of the Sites of 69 Foci Triggering Atrial Fibrillation in 45 Patients. Note the clustering in the pulmonary veins, particularly in both superior pulmonary veins. Numbers indicate the distribution of foci in the pulmonary veins.](Diagram.png)
Atrial Fibrillation Ablation
LSPV pre ablation
LSPV after isolation- entrance block
RSPV- exit block after isolation
AF ablation

- PVI evolved into PVAI (antral isolation) with wide area circumferential pulmonary vein isolation as the main goal
PAF vs. PeAF

• However, this addressed paroxysmal AF (PAF) ablation and not persistent (PeAF) and long standing persistent AF (LS PeAF)

• Outcomes not ideal with PeAF and LS PeAF

• Just PVAI in these patients does not seem to be enough (now LA is negatively remodeled both structurally and electrically)

• Ablation strategies had to evolve
Complex Fractionated Atrial Electrograms (CFAE)

Caldwell et al, Current Cardiol Rev 2012
CFAE algorithms
Surgical Maze
Linear Ablation for PeAF
Linear Ablation for PeAF
STAR-AF 2 trial  Verma et al. NEJM 2015
STAR-AF 2 trial  Verma et al. NEJM 2015

P=0.15 for the overall comparison, by the log-rank test

Freedom from Atrial Fibrillation (%)

Months since First Ablation

- Pulmonary-vein isolation
- Isolation plus electrograms
- Isolation plus lines
Rotor Ablation
Body surface mapping
Where are we today with PeAF ablation

• No clear strategy
• "To each their own"
• Unclear where we are heading with ablation strategies for PeAF
  – PAF: clearly defined strategy of isolating the pulmonary veins electrically & targeting triggers
  – PeAF: PVAI alone? LA substrate ablation? CFAE ablation? Rotor ablation?
• Ideal strategy: identify patients early in PAF and offer therapies
New data in HF patients

- What is the role of AF ablation in HF pts with EF < 35% in reducing HF and mortality
- PAF and PeAF
- Failed or unwilling to take AARs
Results-CASTLE AF

Primary Composite Endpoint

Survival Probability

Follow-Up Time (Months)

Ablation
Conventional

HR, 0.62 (95% CI, 0.43-0.87);
P=0.007
Log-rank test: P=0.006

Patients at Risk
Ablation 179 141 114 76 58 22
Conventional 184 145 111 70 48 12

AF Burden Derived from Memory of Implanted Devices

Percent (%)/in Time

Baseline 3M 6M 12M 24M 36M 48M 60M
Ablation Conventional
Indications for Catheter Ablation of Symptomatic Atrial Fibrillation

Figure 7
"Other" non-pharmacological strategies for AF

Lau et al. Circulation 2017
Conclusion

• AF ablation has evolved over the years with consistent outcomes seen in PAF patients

• Strategies to improve outcomes in PeAF patients are still unclear at this time

• AF is a chronic disease of the atria (like DM, HTN, COPD)

• Risk factor modification and life style changes should be an integral part of treatment strategy in patients with AF (treat both the patient and the disease)
Why Specialty Clinics?

• By 2035, the American Heart Association projects 45% of the United States population will have cardiovascular disease (CVD).

• CVD cost the United States $555 billion in 2016 and is projected to cost $1.1 trillion by 2035.

• By 2018, the Centers for Medicare & Medicaid Services anticipates 90% of traditional Medicare payments will be tied to quality.
Do Specialty Clinics Improve Patient Outcomes?

- Randomized clinical trial data is still needed.
- Staffed by content experts with specialized knowledge and training.
- Improve access to care. Frequently offer same-day appointments, thus decreasing urgent care and emergency room visits.
- Multidisciplinary teams focused on coordination of care.
- Close follow-up with the hope of managing changes in condition in the outpatient setting and decreasing readmission rates.
Are Specialty Clinics Cost Effective?

- Improved patient outcomes translate to increased reimbursement.
- Potential to decrease urgent care and emergency room visits.
- Potential to decrease readmission rates.
- Frequently staffed by advanced practice providers (APPs).
Additional Benefits of Specialty Clinics

• Improved patient satisfaction.

• Allow APPs to practice at the top of their licenses, which can improve productivity and job satisfaction and often translates into cost reduction.
AF Specialty Clinic: Our Vision

• Early identification and intervention.

• Provide comprehensive, lifetime management including:
  ▪ Medication options
  ▪ Ablation
  ▪ Pacemaker
  ▪ Short and long-term monitoring
  ▪ Risk factor education and modification (hypertension, diabetes, hyperthyroidism, obesity, and sleep apnea)
AF Specialty Clinic: Our Team

- Six electrophysiologists
- Two nurse practitioners
- One clinical pharmacist
- Triage nurses dedicated to EP
- One medical assistant dedicated to EP
- Interns, residents, and fellows

Indiana University Health
AF Specialty Clinic: Our Accomplishments

- Increased referrals from primary care offices.
- Increased referrals from cardiology colleagues.
- Implementation of emergency room protocol.
- Implementation of telehealth services.
AF Specialty Clinic: Our Challenges

• Changing the referral culture.
  ▪ Early referral to EP.
  ▪ Not just ablation referrals.

• Establishing appropriate channels for triaging new patient referrals.

• Who sees the MD? Who sees the APP?
AF Specialty Clinic: Our Future Plans

- Increase telehealth volume.
- Hire nurses and medical assistants who will be specifically dedicated to AF.
- Hire another APP.
- Implement a patient support group.
- Expand to other locations.