Management of Symptomatic Atrial Fibrillation

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Atrial Fibrillation Increases Mortality

- True
- False
Atrial Fibrillation is a Progressive Disease

• First episode: Duration often unknown
• Recurrent AFIB: 2 or more episodes
• Paroxysmal AFIB: Self-limited, < 7 days
• Persistent AFIB: Longer than 7 days
  – Method of termination doesn’t change designation
• Permanent AFIB: Cardioversion not attempted, or failed
• A patient can have more than one type, and often moves through these stages over time
Atrial Fibrillation and Remodeling

• Electrophysiologic changes
  – Shortening of atrial refractory periods
  – Loss of normal adaptation of atrial refractoriness to heart rate

• Contractile changes
  – Reduced atrial contractility

• Structural changes
  – Left atrium and left atrial appendage enlargement
  – Decrease in cardiac output
  – Histologic changes

• Prothrombotic changes (increased propensity for clotting)
  – Atrial stasis
  – Increases prothrombotic factors

Atrial Fibrillation Causes Histologic Remodeling of Atria as Early as 4 Months

- Enlarged atrial cells
- Severe myolysis
- Glycogen accumulation

- Reduction in connexin 40 expression

Rhythm Control: Earlier is Better

The longer one waits to initiate a rhythm-control strategy, the harder it is to regain sinus rhythm

Take-Home Message

- Atrial Fibrillation is a progressive disease
- Extensive Remodeling of the heart occurs
  - *Electrical*
  - *Structural*
- If sinus rhythm is the goal for a particular patient, there is some urgency to the situation
Framingham Heart Study

• **Conclusions**—In subjects from the original cohort of the Framingham Heart Study, AF was associated with a 1.5- to 1.9-fold mortality risk after adjustment for the preexisting cardiovascular conditions with which AF was related. The decreased survival seen with AF was present in men and women and across a wide range of ages.
Who to Rate Control?

- Patients with essentially NO symptoms - *maybe*
- Those in whom cardioversion carries too much risk
  - *Comorbid conditions, unable to take warfarin or a NOAC following cardioversion, etc*
- Preserved LV function despite permanent AFIB
Rhythm Control

• Why consider maintaining sinus rhythm?
  – Symptoms from AFIB despite good rate control
  – Failure to achieve adequate rate control
  – Heart Failure secondary to AFIB
  – Younger age (aggressive CV attempts felt safer)
  – Patient preference
  – ? Maybe a mortality benefit – ongoing research

• Remember: stroke risk = CHA2DS2-VASc Score
  – Rhythm today doesn’t change long term risk
  – Exception: If AFIB truly cured, can reevaluate warfarin need

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Rhythm Control Options - 2006

Figure 15. Antiarrhythmic drug therapy to maintain sinus rhythm in patients with recurrent paroxysmal or persistent atrial fibrillation. Within each box, drugs are listed alphabetically and not in order of suggested use. The vertical flow indicates order of preference under each condition. The seriousness of heart disease proceeds from left to right, and selection of therapy in patients with multiple conditions depends on the most serious condition present. See Section 8.3.3.3 for details. LVH indicates left ventricular hypertrophy.
Rhythm Control Options – 2014 Guidelines

Does Rhythm Control Improve Mortality?

• **CABANA Trial Description**

• The (Catheter Ablation Versus Anti-arrhythmic Drug Therapy for Atrial Fibrillation Trial) CABANA Trial has the overall goal of establishing the appropriate roles for medical and ablative intervention for atrial fibrillation (AF). The CABANA Trial is designed to test the hypothesis that the treatment strategy of left atrial catheter ablation for the purpose of eliminating atrial fibrillation (AF) will be superior to current state-of-the-art therapy with either rate control or rhythm control drugs for decreasing the incidence of the composite endpoint of total mortality, disabling stroke, serious bleeding, or cardiac arrest in patients with untreated or incompletely treated AF.
CABANA Trial Update

Summary of Purpose

The (Catheter Ablation Versus Anti-arrhythmic Drug Therapy for Atrial Fibrillation Trial) CABANA Trial has the overall goal of establishing the appropriate roles for medical and ablative intervention for atrial fibrillation (AF). The CABANA Trial is designed to test the hypothesis that the treatment strategy of left atrial catheter ablation for the purpose of eliminating atrial fibrillation (AF) will be superior...

Read More →

Trial Milestones

The following dates are available for this trial. Trial information last updated on 16 January 2016.

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<th>1 AUG 2009</th>
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<th>1 DEC 2017</th>
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Trial Basics

Interventions:
- Left atrial ablation
- Rate or Rhythm Control Therapy

Conditions:
- SEE ALL
- Atrial Fibrillation
- Arrhythmias
- Stroke Prevention

Sponsors:
- SEE ALL
- Mayo Clinic
- Duke University

Trial Design

Allocation: Randomized
Masking: Open Label
Purpose: Treatment
Endpoint: Efficacy Study
Intervention: Parallel Assignment

Contacts

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Recruitment

Enrollment: 2,260
Gender: Both
Minimum Age: 18 Years
Accepts Healthy Volunteers: No
252 locations, 13 countries

Principal Investigators

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Mayo Clinic
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Duke University
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Duke University

NCT003911608 ClinicalTrials.gov
Rhythm Control at St. Joseph Medical Center

• Antiarrhythmic Drug Therapy

• Catheter Ablation
  – Radiofrequency (RF) Ablation
  – Cryoballoon Ablation

• Cardiac Surgery
  – Cox IV Maze surgery
  – Hybrid approaches on the horizon – more about that with Dr. Leone
Arctic Front Cryoballoon

The State of the Art in catheter ablation for atrial fibrillation
Key Inclusion Criteria:
• ≥ 2 documented AF Episodes in the prior 2 months
• Efficacy failure of ≥ 1 AAD (flecainide, propafenone, sotalol)

N = 245
Randomized 2:1 to CRYO* or DRUG

26 centers in US and Canada

* CRYO: Arctic Front® System
STOP AF met pre-specified primary effectiveness end point:

- **98.2%** of CRYO group had acute procedure success
- **69.9%** of CRYO group compared to 7.3% of DRUG group were considered a treatment success at 12 months

STOP AF met the pre-specified primary safety end points:

- Cryoablation procedure events were observed in 3.1% (6.3%, UCB) of CRYO group; below the pre-specified 95% upper confidence bound of 14.8%
- The major AF event rate in the CRYO group was non-inferior to the DRUG group at 12 months, at 3.1% and 8.5% respectively
**CRYO Results:**
- 98.2% acute procedural success
- 62.2% of patients were treatment successes without any AF drugs at 12 months
- 60.1% single procedure success rate
- 19% of patients had redo procedures within the first 90-day follow-up period

**DRUG Results:**
- 79% of DRUG group demonstrated chronic treatment failure and crossed over to the cryoablation procedure
Our Results to Date

- 72 patients for whom 1 year followup data are available
  - Procedure dates 3/12/13 – 8/30/14
  - Includes our earliest experience, the “steep end” of the learning curve

- 28 patients with evidence of recurrence at 1 year
  - Pacemaker check, holter monitor, ER visit, or self-reported and not documented

- Single procedure success = 61.2% (vs 60.1% in STOP-AF)
  - Recall that 19% of cryo patients had repeat ablation in STOP-AF as a component of achieving 69.9% success, but that has not been our strategy thus far
Thank you for your time and attention!

• Please Save Questions for panel discussion to follow