ACOFP Lecture:
Management of the LAA in the Patient with Atrial Fibrillation

Daniel J. Waters, DO
ACOFP FULL DISCLOSURE FOR CME ACTIVITIES

Please check where applicable and sign below. Provide additional pages as necessary.
Name of CME Activity: 2015 AOA/ACOFP Osteopathic Medical Conference & Exposition (OMED)

Dates and Location of CME Activity: October 17 - October 21, 2015 Orange County Convention Center Orlando, Florida
Topic: ACOFP Lecture: Management of the LAA in the Patient with Atrial Fibrillation Tuesday, October 20, 2015 11:00-Noon
Name of Speaker/Moderator: Dan Waters, DO

DISCLOSURE OF FINANCIAL RELATIONSHIPS WITHIN 12 MONTHS OF DATE OF THIS FORM

☐ A. Neither I nor any member of my immediate family has a financial relationship or interest with any proprietary entity producing health care goods or services.
☐ B. I have, or an immediate family member has, a financial relationship or interest with a proprietary entity producing health care goods or services. Please check the relationship(s) that applies.
   - Research Grants
   - Stock/Bond Holdings (excluding mutual funds)
   - Speakers' Bureaus*
   - Employment
   - Ownership
   - Partnership
   - Consultant for Fee
   - Others, please list:

Please indicate the name(s) of the organization(s) with which you have a financial relationship or interest, and the specific clinical area(s) that correspond to the relationship(s). If more than four relationships, please list on separate piece of paper:

<table>
<thead>
<tr>
<th>Organization With Which Relationship Exists</th>
<th>Clinical Area Involved</th>
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*If you checked “Speakers’ Bureaus” in item B, please continue:
- Did you participate in company-provided speaker training related to your proposed topic?  Yes: No:
- Did you travel to participate in this training?  Yes: No:
- Did the company provide you with slides of the presentation in which you were trained as a speaker?  Yes: No:
- Did the company pay the travel/lodging/other expenses?  Yes: No:
- Did you receive an honorarium or consulting fee for participating in this training?  Yes: No:
- Have you received any other type of compensation from the company? Please specify:  Yes: No:
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- Will your topic involve information or data obtained from commercial speaker training?  Yes: No:

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Signature: ____________________________  Date: 9/9/2015
Dan Waters, DO

Please fax this form to ACOFP at 866-328-1835, or e-mail to joan@acoftp.org as soon as possible.
Deadline: Friday, September 11, 2015
MANAGEMENT OF THE LEFT ATRIAL APPENDAGE

IN PATIENTS WITH ATRIAL FIBRILLATION

Daniel J. Waters, DO FACOS, FACC, FACS

Mercy Medical Center - North Iowa

Mason City, Iowa
NOTHING TO DISCLOSE
1.2 Million cases of afib in 2010
Projected to more than double by 2030
- Collila, et al. AJC, 2013
Primarily a function of the aging of the population

Management of the LAA
Management of the LAA in afib

- Risk of STROKE
- CHAD2 SCORE
  - CHF - 1 Point
  - HTN - 1 Point
  - AGE>75 – 1 Point
  - DIABETES – 1 Point
  - Prior Ischemic Event (2 Points)

Stroke Risk in A fib

CHA2DS2-VASc score for stroke risk in atrial fibrillation

<table>
<thead>
<tr>
<th>Feature</th>
<th>Score</th>
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<tbody>
<tr>
<td>Congestive Heart Failure</td>
<td>1</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1</td>
</tr>
<tr>
<td>Age &gt;75 years</td>
<td>2</td>
</tr>
<tr>
<td>Age 65-74 years</td>
<td>1</td>
</tr>
<tr>
<td>Stroke/TIA/TE</td>
<td>2</td>
</tr>
<tr>
<td>Vascular disease (previous MI, peripheral arterial disease or aortic plaque)</td>
<td>1</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>1</td>
</tr>
</tbody>
</table>

Annual Stroke Risk with Respect to CHADS 2 Score (1)

<table>
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<tr>
<th>CHADS2 Score</th>
<th>Stroke Risk %</th>
<th>95% confidence interval</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>1.9</td>
<td>1.2-3.0</td>
</tr>
<tr>
<td>1</td>
<td>2.8</td>
<td>2.0-3.8</td>
</tr>
<tr>
<td>2</td>
<td>4.0</td>
<td>3.1-5.1</td>
</tr>
<tr>
<td>3</td>
<td>5.9</td>
<td>4.6-7.3</td>
</tr>
<tr>
<td>4</td>
<td>8.5</td>
<td>6.3-11.1</td>
</tr>
<tr>
<td>5</td>
<td>12.5</td>
<td>8.2-17.5</td>
</tr>
<tr>
<td>6</td>
<td>18.2</td>
<td>10.5-27.4</td>
</tr>
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**Categories of A fib**

**PAROXYSMAL** (also called Intermittent)
- Lasts > 30 sec
- Terminates spontaneously < 7 days
- Unrelated to a reversible cause (cardiac surgery, pericarditis, MI, PE, hyperthyroidism, etc.)

**PERSISTENT**
- Lasts > 7 days

**LONGSTANDING PERSISTENT**
- UNINTERRUPTED AF > 1 year

**PERMANENT**
- Therapeutic efforts either failed for foregone

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**A Fib + LAA + CLOT = CVA**

Therapy can now be directed at all three contributing factors

**Medical: (afib, clot)**
- Antidysrhythmics (Flecainide, Amiodarone)
- Antiplatelet/Anticoagulants
  - Aspirin, Persantine, Warfarin, NOAC

**Procedural: (afib)**
- Cardioversion (DCC)
A Fib + LAA + Clot = CVA

- **PERCUTANEOUS (afib, LAA)**
  - Catheter-based Ablations (EP)
  - Trans-Septal LAA Devices (via Fem or Jugular v.)
  - Epicardial Devices (via Pericardial space)

- **SURGICAL (afib, LAA)**
  - Epicardial/endocardial Ablation Lesions
  - Device Occlusion/Exclusion of LAA
  - Surgical Excision or exclusion of LAA

**MEDICAL THERAPY** for A fib
Acute success rate in DCC with biphasic shock is 95%
They Shock Horses, Don’t They?
Ablation Procedures

- Usually a second line therapy for pts who have failed anti-arrhythmic drug therapy or those with drug intolerance
- Generally directed at isolating the Pulmonary Veins in the Left Atrium
Ablation Therapy

- Ideal pt is one with Paroxysmal AF in the absence of structural heart disease
- Efficacy rates vary from 40-90%
- Success rates are lower in persistent and longstanding persistent AF

Percutaneous Trans-Pericardial Therapies

- Epicardial Ablation Therapies
  - “Convergent” technique: direct pericardioscopic access + transvenous catheter ablation
- Left Atrial Appendage Therapies
  - LARIAT Device
Percutaneous Epicardial Ablation
Percutaneous Epicardial Ablation

Transdiaphragmatic Pericardioscopic Access

Percutaneous Epicardial Ablation
LARIAT Device for LAA Closure

- “Backdoor” 501(k) FDA approval for a “suture device” for “soft tissue approximation”
- Clinical Trials not required
- 5 U.S. Reports – all case-studies
- Significant adverse events reported
TRANS-SEPTAL APPROACH
- Int Jugular or Fem v. access to Right Atrium
- Puncture of Inter-atrial septum at Fossa Ovalis to access Left Atrium
- Device delivery into ostium of the LAA
- Fluoroscopy + TEE utilized

TRANS-SEPTAL PUNCTURE
Older Devices
- Amplatzer occluder
  - Designed to occlude Atrial Septal Defects
- PLAATO Device
  - No longer being actively developed by manufacturer
Percutaneous LAA Occlusion

- WATCHMAN Device
  - FDA Approved FOR LAA CLOSURE in March 2015
  - 4 Major Clinical Trials
    - PROTECT-AF
    - PREVAIL
    - CAP
    - ASAP
  - Total of 1311 Implants

WATCHMAN LAA Occlusion
Cox-Maze Procedure
- Still the best procedure for treating persistent afib
- “Cut-and sew” technique with multiple cardiac incisions, CPB, etc.
Newer ablation methods (cryo, Bipolar RF)
- Adaptation of C-M “lesion sets” to these energy sources
- Usually done as an adjunct to planned cardiac procedures
- “Stand-alone” minimally invasive procedures also possible
Surgical Treatment of the LAA

- Multiple Options
  - Excise and Oversew (Best)
  - External Stapling
  - External Occlusion
    - Atri-Clip
    - TigerPaw
  - Internal Occlusion (via Left Atriotomy)
    - Probably least effective!
Surgical Treatment of the LAA

Vagaries of LAA Morphology

A. Hook  B. Seahorse  C. Finger (with knob)  D. Knob
E. Wing  F. Sprial  G. Flame  H. Arrowhead
THANK YOU FOR THE PRIVILEGE OF PRESENTING AT ACOFP!