PRESERVE
Study Update

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Predicting the Safety and Effectiveness of Inferior Vena Cava Filters

Disclosures

- Research Funding
  - PRESERVE IDE (ALN, Argon, B. Braun, Bard, Cook, Codilex)
- Consulting Agreements
  - Volcano, Cook
- Medical Advisory Board
  - Avantec

IVC Filters - Why Is The FDA So Concerned

the FDA warning of August 2010 (12) reported 146 cases of filter migration and 56 filter fractures among a variety of filter designs, including the BARD G2.
the FDA communication expressed the concern that these mechanical failures may be associated with the long-term placement of retrievable filters.

Unfortunately, the FDA adverse events reports does not track the total number of filters placed frequency of these complications unknown their incidence is unknown.

Given the potential severe consequences of
- filter fracture
- filter embolization
- vena cava penetration of filter parts
- the marked growth in their use
the SVS/SIR/FDA have designed this study
- to better understand the current use of vena filters
- and the adverse events associated with their use.

The overall goals
- Characterize current practice
  - the indications
  - filter type
  - frequency and success of filter removal
  - safety of placement initially and in the long term
  - filter mechanical stability
  - caval patency
  - frequency of subsequent episodes of pulmonary embolism
  - recurrence of deep vein thrombosis
The first steps are to identify the characteristics of use in a broad range of clinical practice settings in the US.
SIR and SVS formed a joint foundation, the "IVC Filter Study Group Foundation" a 501(c)(3) not for profit entity which sponsors and oversees PRESERVE
The IVCFSGF chose New England Research Institutes (NERI) as CRO
Working with NERI, the IVCFSGF steering committee completed the protocol
The FDA approved the PRESERVE IDE

The PRESERVE Trial
Secondary endpoints include the following:
• Procedure-related complications, in the judgment of the Principal Investigator at 3-months
• Major adverse events (composite and individual components) defined as death, PE, caval thrombotic occlusion, DVT, clinically significant perforation, retroperitoneal hematoma, or adjacent organ penetration at 3-months, 6-months, 12-months, 18-months, and 24-months
• Filter tilting >15° at any time-point as determined by appropriate imaging;

The PRESERVE Trial
Secondary endpoints include the following:
• Filter retrieval at any time
  □ Attempted retrieval
  □ Successful retrieval
  □ Failed retrieval
  □ Percentage of retrieval success
  □ Complications associated with filter retrieval
  □ Reasons for failed retrieval
• Secondary Effectiveness Endpoint will be calculated for each individual filter and includes freedom from PE at 12 months.

Study Design
- Multi-center, prospective, open label, non-randomized
- 60 sites in US
- 2,100 subjects
  □ 300 subjects enrolled for each IVC filter from participating manufacturers
  □ Site Limits: 45 subjects per filter; 210 subjects overall
- Secondary Effectiveness Endpoint
  □ Will allow potential labeling expansion

Inclusion Criteria
- Male or Female age 18 years or older;
- Requires IVC filter for prevention of PE;
- Provide written informed consent and written HIPAA authorization prior to initiation of study procedures;
- Willing to comply with the specified follow-up evaluation schedule
Exclusion Criteria

- Subject is unable to participate in study evaluations pre- and post-treatment;
- Known sensitivity to contrast or serious contrast reaction such as anaphylaxis for which premedication is known to be unsuccessful in alleviating symptoms

PRE SERVE

- A core lab has been selected: UVA
- NERI is working with the ACR to use TRIAD to anonymize images presented to core lab

PRE SERVE Methods

Table 1: Time and Event Schedule for Trial

<table>
<thead>
<tr>
<th>Event</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
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<tr>
<td>Informed Consent</td>
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<tr>
<td>History</td>
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<tr>
<td>Medical History</td>
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<tr>
<td>Physical exam</td>
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<tr>
<td>Anticoagulant &amp; antiplatelet medication</td>
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<td>Lab: CBC, urinalysis, Coag panel</td>
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<tr>
<td>Imaging: Venogram</td>
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<tr>
<td>Imaging: Non-contrast abdominal CT</td>
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<td>AE assessment</td>
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</table>

- Subjects whose filters are removed will be evaluated 1 month following removal

Impact of PRE SERVE

- Largest dataset on IVC Filters
- Major paradigm-shift from traditional trial design & data collection
- Real world evidence to support regulatory decision-making for medical devices

Enrollment update

Enrollment Accrual as of 11/13

- Projected Enrollment
- Actual Enrollment
**Cumulative Accrual Thru 11/13**

**Enrollment by Filter Type as of 11/13**

**Enrollment Tips**

- Because of real-world evidence collection, trauma patients or those with short life-expectancy are eligible for trial
- Legally authorized representative (LAR) consent is acceptable for patient who are unable to consent on their own
- All patients requiring IVC filter insertions should be considered a candidate for PRESERVE regardless of specialty performing the procedure

**Site Updates**

**Site Activation Status**

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<tr>
<th>Status</th>
<th># of Sites</th>
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<tr>
<td>Enrolling</td>
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<tr>
<td>Pending Enrollment of First Patient</td>
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<tr>
<td>Total Sites Activated</td>
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</table>

**Sites not yet activated**

<table>
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**Top Enrolling Sites as of 11/13**

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<tr>
<th>Site</th>
<th># Subjects</th>
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<tr>
<td>Northwestern Memorial Hospital</td>
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<tr>
<td>University of Michigan</td>
<td>79</td>
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<tr>
<td>Indiana University</td>
<td>69</td>
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<td>Washington University</td>
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<td>Sarasota Memorial Hospital</td>
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### Leader Board by Filter as of 11/13

<table>
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<tr>
<th>Filter</th>
<th>Site</th>
<th>PI</th>
<th>Specialty</th>
<th>CRC</th>
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<tbody>
<tr>
<td>ALN</td>
<td>Northwestern Memorial Hospital</td>
<td>Robert Lewandowski</td>
<td>IR</td>
<td>Kristie Kennedy</td>
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<tr>
<td>Denali</td>
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<td>Justin Lee</td>
<td>IR</td>
<td>Michelle Lewis</td>
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<tr>
<td>Gunther Tulip</td>
<td>Northwestern Memorial Hospital</td>
<td>Robert Lewandowski</td>
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<td>Optease/Trapease</td>
<td>southcoast</td>
<td>Michael Ayad</td>
<td>VS</td>
<td>Osira Benvenido</td>
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<td>Option Elite</td>
<td>Indiana University</td>
<td>Thomas Casciani</td>
<td>IR</td>
<td>Sarah Munson, Hayley Trussell</td>
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<tr>
<td>VenaTech</td>
<td>Medical College of WI</td>
<td>Eric Hohenwarter</td>
<td>IR</td>
<td>Elizabeth Vel</td>
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**Our Sites are IMPORTANT for the success of PRESERVE!**