The PROTAGORAS study: Combined use of Endurant AAA device and balloon-expandable chimney grafts

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Disclosure

Speaker name:

.........G. Torsello.................................................................

I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☒ Research grant by Medtronic

☐ I do not have any potential conflict of interest
The Chimney Technique in Endovascular Aortic Aneurysm Repair: Late Ruptures After Successful Single Renal Chimney Stent Grafts

Andrew Schiro,1 George A. Antoniou,1 David Ormesher,1 Adam C. Pichel,2 Finn Farquharson,1 and Ferdinand Serracino-Inglott,1,3 Manchester, United Kingdom


9 patients treated by 4 different abdominal and chimney devices combinations
Critical analysis of results after chimney endovascular aortic aneurysm repair raises cause for concern

Salvatore T. Scali, MD, Robert J. Feezor, MD, Catherine K. Chang, MD, Alyson L. Waterman, MD, MPH, Scott A. Berceli, MD, PhD, Thomas S. Huber, MD, PhD, and Adam W. Beck, MD, Gainesville, Fla

**CRITICAL ANALYSIS OF THE LITERATURE**

41 patients treated by 10 different abdominal and chimney devices combinations

Inclusion of 6 heterogeneous pathologies
Published ch-EVAR experience

- Use of various combinations of abdominal endografts and chimney graft types:
  - stent-grafts with suprarenal vs. infrarenal fixation
  - nitinol vs. stainless steel skeleton
  - balloon or self-expanding covered chimney stents

- The combinations are linked to significant different incidence of gutters-associated endoleaks and chimney graft occlusions
The Best Conditions for Parallel Stenting During EVAR: An In Vitro Study

G. Mestres a,*, J.P. Uribe a, C. García-Madrid a, E. Miret b, X. Alomar c, M. Burrell d, V. Riambau a

BEST PERFORMANCE REGARDING GUTTERS AREA AND FREEDOM FROM CHIMNEY GRAFT COMPRESSION IN CASE OF:

Endurant with Advanta V12/i-Cast or Excluder with Viabahn

Table 2
Differences in gutters, parallel stent compression (median measures and interquartile ranges [25th–75th range]) and main endograft infolding (% and number), among different main body endograft oversizings.

<table>
<thead>
<tr>
<th>Oversizing</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallel stent compression</td>
<td></td>
</tr>
<tr>
<td>Viabahn</td>
<td>0.715</td>
</tr>
<tr>
<td>V12</td>
<td>0.918</td>
</tr>
<tr>
<td>Infolding of the main endograft (% and number)</td>
<td></td>
</tr>
<tr>
<td>Excluder</td>
<td>0.796</td>
</tr>
<tr>
<td>Endurant</td>
<td>0.225</td>
</tr>
<tr>
<td>(% and number)</td>
<td>0.001</td>
</tr>
<tr>
<td>Endograft</td>
<td>0.001</td>
</tr>
<tr>
<td>Excluder</td>
<td>0.368</td>
</tr>
<tr>
<td>Endurant</td>
<td></td>
</tr>
</tbody>
</table>
The Protagoras study

- **Standard** use of *Endurant* as abdominal device and *Advanta V12/i-Cast* as chimney graft
- **2 Hospitals** (Münster Germany & Udine Italy)
- **1-2009-1-2013** Prospectively collected data of high–risk patients with *pararenal* pathologies
- **Main outcome:** aneurysm sac regression, freedom from sec. procedures & chimney graft patency
- **Mid-term** radiological follow-up
THE PROTAGORAS STUDY

OVER SIZING 20-30% BASED ON CT-ANGIOGRAPHY

IMAGING FOLLOW-UP PROTOCOL

48-72 Hr  1 DISCHARGE  6 MONTH  12 MONTH  24 MONTH
US  US  US  CT  CT
CT  CT  CT

*MRI IN CASE OF RENAL FAILURE
## Protagoras registry – Patient characteristics

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, y</strong></td>
<td>77.14±7.5</td>
</tr>
<tr>
<td><strong>ASA IV</strong></td>
<td>42.5%</td>
</tr>
<tr>
<td><strong>Arterial hypertension</strong></td>
<td>86.3%</td>
</tr>
<tr>
<td><strong>Diabetes mellitus</strong></td>
<td>26%</td>
</tr>
<tr>
<td><strong>Dyslipidemia</strong></td>
<td>63%</td>
</tr>
<tr>
<td><strong>Chronic obstructive pulmonary disease</strong></td>
<td>28.8%</td>
</tr>
<tr>
<td><strong>Nicotine use</strong></td>
<td>47.9%</td>
</tr>
<tr>
<td><strong>Chronic kidney disease</strong></td>
<td>41.1%</td>
</tr>
<tr>
<td><strong>Need for hemodialysis</strong></td>
<td>1.4%</td>
</tr>
</tbody>
</table>
THE PROTAGORAS STUDY: RESULTS

187 CHIMNEY GRAFT DEPLOYED IN 128 PTS (1.5 ch-GRAFT /PATIENT)

MEAN PREOPERATIVE PROXIMAL NECK LENGTH 4.7 mm

MEAN NEW PROXIMAL NECK LENGTH 18.7 mm

30 DAY MORTALITY 0.8 % (DUE TO CARDIAC DECOMPENSATION)

MEAN FOLLOW-UP 24 MONTHS

OVERALL MORTALITY WAS 17.2 % (22 PTS)

NEW ONSET OF TYPE 1 ENDOLEAK : 1.6 % (2 CASES)

SAC REGRESSION : 64.8 mm → 60.1 mm highly significant p <0.001

PRIMARY PATENCY OF ch-GRAFT WAS 95.7%
Protagoras registry - Results

Primary chimney graft patency was 95.7%
Ch-EVAR-related reinterventions: 12 (9.4%)
LOST & FOUND
Protagoras registry
Conclusions

• Standard use of the Endurant abdominal device for ch-EVAR is associated with high technical success, significant aneurysm sac regression and low incidence of secondary procedures after 2-year radiological follow up.

• These results will give significant impetus regarding devices selection facilitating the standardization of technique.
home page: www.gefaesschirurgie-muenster.de

Thank you!

Universitätsklinik Münster

St. Franziskushospital Münster