EnChEVAR
patient selection
and case planning

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Disclosure

Speaker name:
K. Donas

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

I do not have any potential conflict of interest
Believer of the chimney technique since 2010

Disclosures
ChEVAR

Use of off-the-shelf devices
Multicentre Experience with the Chimney Technique for Abdominal Aortic Aneurysms in French University Hospitals

Joseph Touma, Caroline Caradu, Raphaëlle Sylvestre, Nicla Settembre, Fabrice Schneider, Alessia Moia, Sabrina Ben Ahmed, Benoit Lebas, Julien Gaudric, Jean-Marc Alsac, Edouard Warein, Raphaël Coscas, for the Association Universitaire pour la Recherche en Chirurgie (AURC) Collaborators

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<table>
<thead>
<tr>
<th>Characteristics of ChEVAR</th>
<th>ChEVAR procedures ( (n = 201) )</th>
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<tbody>
<tr>
<td><strong>Implanted stent grafts</strong></td>
<td></td>
</tr>
<tr>
<td>Zenith (Cook)</td>
<td>113 (56.2)</td>
</tr>
<tr>
<td>Endurant (Medtronic)</td>
<td>39 (19.4)</td>
</tr>
<tr>
<td>C3 (Gore)</td>
<td>35 (17.4)</td>
</tr>
<tr>
<td>AFX (Endologix)</td>
<td>5 (2.5)</td>
</tr>
<tr>
<td>Others</td>
<td>9 (4.5)</td>
</tr>
<tr>
<td><strong>Type of chimney stent</strong></td>
<td></td>
</tr>
<tr>
<td>Covered stents</td>
<td>234/343 (68.2)</td>
</tr>
<tr>
<td>Bare metal stents</td>
<td>109/343 (31.8)</td>
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</tbody>
</table>
Conclusion: In this large national ChEVAR series, early results were concerning. The reasons may lie in heterogeneous practices between centres and ChEVAR use outside of current recommendations regarding oversizing rates, endograft types, and sealing zones. Future research should focus on improvements in pre-operative planning and intra-operative technical aspects.
The PROTAGORAS study to evaluate the performance of the Endurant stent graft for patients with pararenal pathologic processes treated by the chimney/snorkel endovascular technique

Konstantinos P. Donas, MD, a,b Giovanni B. Torsello, MD, a,b Gianluca Piccoli, MD, c Georgios A. Pitoulis, MD, a,b,d Giovanni Federico Torsello, MD, e Theodosios Bisdas, MD, a,b Martin Austermann, MD, a,b and Daniele Gasparini, MD, c Münster, Germany; Udine, Italy; and Thessaloniki, Greece

Results: A total of 187 snorkel/chimney grafts were successfully placed in 128 patients. Technical success was 100%. The mean preoperative proximal neck length and aneurysm size (range, 48-135 mm), respectively. The postoperative new neck length after use of chimney graft mean aneurysm sac decreased significantly (60.8 mm; 95% confidence interval, 2.036-72.004 mm) during radiologic follow up of 24.6 ± 17.4 months. Thirty-day mortality and midterm mortality were 0% and 2.2%, respectively. Two patients (1.6%) with single chimneys presented with late new onset of the additional tube and multiple chimney placement. Primary chimney graft patency was 90.7%, and graft-related reinterventions was 93.1%.
En-ChEVAR

Endurant II

**Stent struts fully encapsulated with PTFE**

**Gold radiopaque marker**
To enhance visibility.

**Single stent with open cell design**
Provides flexibility for delivery and placement.

**Strut and connector design engineered to provide radial strength and minimize foreshortening**

**Pre-mounted on a non-compliant balloon to enable predictable expansion**
En-ChEVAR

1. Patient selection
2. Case planning
En-ChEVAR Anatomy

- Absence of relevant infra-suprarenal angulation
- Diameter of the renal arteries of at least 6mm without stenosis or angulation
- Distance of the lower right RA and left upper RA >10mm
- Orientation of the renal arteries: Downwards
- CTA of thoracic aorta? Left subclavian artery patent? Thrombus?
En-ChEVAR Anatomy

Pre-operative imaging evaluation
Impact of renal angulation on chimney graft behavior

EJVES 2023 May 10;S1078-5884(23)00366-0.
In Vitro Radiological Evaluation of Different Types of Chimney Stents Using a Silicon Flow Model with Adjustable Physiological Simulating Conditions
Gergana T Taneva¹, Marco V Usai², Georgios A Pitoulias³, Konstantinos P Donas
En-ChEVAR Anatomy

Impact of renal angulation on chimney graft behavior

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New hybrid OR in Langen

Advanced radiological imaging - IVUS
Set up
Standardization in materials selection
30% aortic stent graft oversizing to seal zone diameter

Selection of chimney graft with high radial force (Radiant)

Length of seal zone 20mm
En-ChEVAR outcomes

Short M-shaped stents allows harmonic adaptability of the device in hostile necks and full expansion of the device within 10 mm
The PROTAGORAS 2.0 Study to Identify Sizing and Planning Predictors for Optimal Outcomes in Abdominal Chimney Endovascular Procedures

Stefano Fazzini a,b, Ombretta Martinelli b, Giovanni Torsello c, Martin Austermann a, Marco D. Pipitone d, Giovanni F. Torsello d, Luigi Irace b, Konstantinos P. Donas e

Ca. expansion 12 mm between 2nd and 3rd stent!!!
High Grade Conformability promotes gutters thrombosis
Dedicated nurse team and continuous team education with hands-on models, workshops
Dedicated nurse team and continuous team education
Following those recommendations, En-ChEVAR is a reliable treatment also in newly founded vascular centers as in January 2020 at the Asklepios Clinic Langen, Germany.
1\textsuperscript{st} En-ChEVAR in Europe
Synopsis

EnChEVAR will change the technique from a bailout to a standardized, effective and complementary therapeutic option of complex AAA
FIRST THEY IGNORE YOU.
THEN THEY LAUGH AT YOU.
THEN THEY FIGHT YOU.
THEN YOU WIN.

MAHATMA GANDHI 🙏🏻