1-year outcomes of the Indigo thrombectomy catheter for deep vein thrombosis

Dr. Theodosios Bisdas

Clinic of Vascular Surgery
Athens Medical Center, Greece
St. Franziskus Hospital, Muenster, Germany
Different techniques to remove the clot

- Rheolytic pharmaco-mechanical thrombectomy
- Rotational mechanical thrombectomy
- Ultrasound-enhanced thrombolysis
- Aspiration thrombectomy
Aim of the study

Aim of our study was to evaluate the safety and efficacy of aspiration thrombectomy for the treatment of acute lower limb DVT.
The Indigo thrombectomy system

MAXIMISED ASPIRATION POWER
Large Lumen Aspiration

TIP DIRECTIONALITY
For Circumferential Aspiration

ADVANCED TRACKING TECHNOLOGY
Multiple Materials Transitions

MECHANICAL CLOT ENGAGEMENT
Proprietary Separator Technology
Mechanism of action

In vitro model
CAT8 - tip shapes

Straight
Available in 85 cm

Torq
Available in 85 cm

XTorq
Available in 115 cm

STR

TORQ

XTORQ

2.24 mm

15 mm

25.4 mm

Data on file at Preventor, Inc.
Procedural steps
Introducer
Procedural steps
Separator
Case presentation
Case presentation
In case of cava filter

Capturex (Straub Medical)
Case presentation

BEFORE

AFTER
Case 2
(DVT, POD 4 post cholecystectomy)
Case 3
32y, female, acute TVT, left limb, transpopliteal access
Case 3

32y, female, acute DVT, left limb, transpopliteal access
Patients and Methods

- Retrospectively collected data
- December 2015 – January 2018, St. Franziskus Hospital, Muenster, GER
- CAT XTORQ catheter (Penumbra Inc)
- Consecutive patients with iliofemoral DVT up to 14 days
- All but one patient Rivaroxaban for 1 year and compression stockings for at least 6 months
## Key characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>No of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>25</td>
</tr>
<tr>
<td>Median age (IQR)</td>
<td>51 (43-67)</td>
</tr>
<tr>
<td>Male</td>
<td>15 (60%)</td>
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<tr>
<td>Villalta Score &gt; 10</td>
<td>17 (68%)</td>
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<tr>
<td>Paraneoplastic syndrome</td>
<td>1 (4%)</td>
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<tr>
<td>Previous DVT</td>
<td>4 (16%)</td>
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<tr>
<td>Previous symptomatic pulmonary embolism</td>
<td>2 (8%)</td>
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<tr>
<td>Median interval (days) between symptoms and treatment (IQR)</td>
<td>8 (2-10)</td>
</tr>
<tr>
<td>Involvement of CFV</td>
<td>19 (76%)</td>
</tr>
</tbody>
</table>
Outcomes

• **Main**
  - **Technical success**: ≥ 90% thrombus removal with restoration of flow postthrombectomy and < 50% diameter narrowing, no robust collateral filling, and/or mean pressure gradient < 2 mmHg after stenting (common femoral, extern iliac and common iliac vein)
  - **Technical success in patients with absolute contraindication for lytic agent**
  - **Primary patency @ 12 months**

• **Secondary**
  - Postthrombotic syndrome
  - Major bleeding*
  - Symptomatic pulmonary embolism
  - Death

*if it was associated with a fall in the hemoglobin level of at least 2.0 g/dl, transfusion of ≥ 2 units of red blood cells, or involvement of a critical site (e.g., intracranial, intraspinal)
Results

25 patients included
In 5 patients absolute contraindication for lysis
Mean lesion length: 190 mm

- rtPA intraop: 6 cases, 24%
- Cava filter: 5 cases, 20%
- rtPA postop: 7 cases, 28%
- Stent deployment: 24 cases (Veniti, BSC), 1 case Obliquus (Optimed), 100%
Short-term outcomes

• **Technical success**: 88% (22 out of 25 patients)
  - Pat 1: < 90% thrombus removal
  - Pat 2: < 90% thrombus removal
  - Pat 3: Aspirated volume > 1 L

• **Technical success in patients with absolute contraindication for lysis**: 100%

• **No pulmonary embolism**

• **No major bleeding up to 30 days** (median aspirated volume: 730 ml (610-1240))

• **Mean hospital day**: 1.5 days
Long-term outcomes

• Primary patency: 96%
• Moderate to severe PTS: 2 (8%)
• Symptomatic pulmonary embolism: 1 (4%)*
• Death: 1 (4%)*

*1 patient with paraneoplastic syndrome
Conclusions

• The Indigo thrombectomy system showed very promising results in acute DVT cases
• Ideal for lysis-free indication (paraneoplastic, major surgery, intracranial bleeding etc)
• Very low rates of moderate or severe PTS
• After stenting, high primary patency at 1 year
• Learning curve
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