Successful recanalisation of venous thrombotic occlusions with Aspirex mechanical thrombectomy

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Disclosure

Speaker name: Michael Lichtenberg
I have the following potential conflicts of interest to report:
- Consulting (CR Bard, Veniti, Volcano, Biotronik, Terumo, Biotronik, Straub Medical, Veryan, TVA medical, Spectranetics)
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)
- I do not have any potential conflict of interest

VTE Impact Assessment Group in Europe (VITAE)

<table>
<thead>
<tr>
<th></th>
<th>Outpatient</th>
<th>During hospital stay</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>VTE</td>
<td>206,452</td>
<td>265,213</td>
<td>471,665</td>
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<tr>
<td>Deep vein thrombosis</td>
<td>86,511</td>
<td>209,675</td>
<td>329,186</td>
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<tr>
<td>Pulmonary embolism</td>
<td>104,915</td>
<td>201,457</td>
<td>306,372</td>
</tr>
<tr>
<td>VTE associated death</td>
<td>104,915</td>
<td>201,457</td>
<td>306,372</td>
</tr>
<tr>
<td>Patient on anticoagulation</td>
<td>14,141</td>
<td>18,410</td>
<td>32,551</td>
</tr>
<tr>
<td>Patient not on anticoagulation</td>
<td>103,774</td>
<td>183,047</td>
<td>386,821</td>
</tr>
<tr>
<td>Sudden death</td>
<td>103,774</td>
<td>183,047</td>
<td>386,821</td>
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<tr>
<td>Chronic complications</td>
<td>177,336</td>
<td>218,657</td>
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<tr>
<td>Postthrombotic</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Syndrome</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pulm. hypertension</td>
<td>1,115</td>
<td>2,961</td>
<td>4,076</td>
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</table>

50% of patients develop PTS after proximal DVT

The overall relative risk of developing PTS was 1.58 (95% confidence intervals: 1.24-2.02) in patients suffering from asymptomatic DVT as compared to patients without DVT \( p<0.0005 \).

Primary four-level DVT, calf vein thrombosis, recurrence of ipsilateral DVT and a non-sufficient oral anticoagulation are of prognostic significance for developing clinically relevant PTS within 10 to 20 years after first DVT.


Mechanical Thrombectomy

Rotational thrombectomy (Aspirex®)

6 – 10 French

8 F: blood volume aspiration up to 75 ml/min
10 F: blood volume aspiration up to 135 ml/min
Two center experiences for DVT thrombectomy with the Aspirex® catheter

- 26 Aspirex thrombectomy procedures
- 23 DVT’s lower limb
- 3 DVT’s upper limb

Technical success analysis
Safety analysis
6 month follow up patency analysis

Rostock

- 26 patients (14 male)
- Mean age: 50
- 21 iliofemoral DVT
- 2 descending IVC thrombosis
- 3 subclavian thrombosis (only Aspirex)

- Stent rate: 95 %
- Technical success = ready in cath lab: 96 % (22/23 patients)
- No SAE (bleeding, perforation, pulmonary embolism)

Mechanical thrombus fragmentation

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age</th>
<th>Reason</th>
<th>Access</th>
<th>Location</th>
<th>Hemodynamic</th>
<th>Stent</th>
<th>Ready in Lab</th>
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<td>f 52</td>
<td>8 F</td>
<td>IVC/VIP</td>
<td>VPC</td>
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<td>yes</td>
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<td>8 F</td>
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<td>VPOP</td>
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<tr>
<td>f 81</td>
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<td>f 79</td>
<td>10 F</td>
<td>IVC/VIP</td>
<td>VPOP</td>
<td>Yes</td>
<td>yes</td>
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</tbody>
</table>

21 y, female, descending DVT in May – Thurner syndrome. Transpopliteal access, 8 F Aspirex®

Ileofemoral DVT therapy with Aspirex catheter

- May-Thurner synd: 43.1 years, 66 % female
- Cancer patients with more phlegmasia symptoms
- Duration of symptoms: 1 day – 3 months
- Hemodynamic technical success in cath lab with Aspirex and stent implantation: 100 % (24/24 patients)
- No prolonged lytic therapy, just r-tPa bolus in 2 patients
- Stent rate 100 % in 20 patients
- Stent rate 1,25 / patient
- Complications: No bleeding, PE
  – 2 small perforations in the CIV stent
  – 1 wire loss, snared
TIS, 23 y, female: 6 F Aspirex

Therapy strategies for endovascular DVT treatment

Aspirex®
- Pure mechanical thrombectomy, no thrombolytics
- Age of thrombus not so relevant
- Chance to finish in the Angiolab
- No RCT data, only registry data

EKOS®, Trellis®, Angiojet®
- Time consuming
- Additional thrombolytics
- Bleeding risks
- Re-angio after finishing treatment for stent placement etc. (EKOS)
- Organized thrombus > 4 weeks = possible ineffectiveness
- Additional ICU stay in EKOS
- RCT data for EKOS and Angiojet

Conclusion
DVT thrombectomy with the Aspirex PMT
- Is effective in venous thrombus removal
  - Even in more organized thrombus
- Restores vein patency in upper and lower limb
- Preserves valvular function
- Has low risk and less side effects (safe)
  - No ICU stay
  - „End it in the Angiolab”
- Prevention of post thrombotic syndrome

Thank you for your attention