Vacuum Assisted Thrombectomy With The Penumbra Indigo System For Visceral And Lower Limb Artery Occlusions

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DISCLOSURE

I have no actual or potential conflict of interest in relation to this presentation

Thromboembolic acute events: what do we need?

Surgery
- Quick flow restoration
- Avoid lytic therapies
- Reduce risk of bleeding

Local (rTPA, UK)
- Low invasivity
- Short hospital stay

Percutaneous Thrombectomy
- is based on a simple aspiration mechanism
- has shown a high success in ischemic stroke

Technical Results of Vacuum-Assisted Thrombectomy With The Penumbra Indigo System For Visceral And Lower Limb Artery Occlusions

Results evaluated regardless the site of thromboembolism

<table>
<thead>
<tr>
<th>Lesion</th>
<th>Complete recanalization (%)</th>
<th>Complete revascularization (%)</th>
<th>Technical Success (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTK</td>
<td>90,75</td>
<td>87,50</td>
<td>78,90</td>
</tr>
<tr>
<td>ATK</td>
<td>92,50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ART</td>
<td>94,2</td>
<td>71,5</td>
<td></td>
</tr>
</tbody>
</table>

Feet Embolization During Limb Salvage Procedures in Critical Limb Ischemia: Patients Successfully Managed With Mechanical Thrombectomy & Technical Note

- Fast effective approach to treat intraprocedural distal embolization
- Avoid potential dramatic clinical consequences.

• No lytic (3) short (6) therapy 8 42% 78% full revasc.
• Long lytic therapy (>24h) 7 36%
• Surgery/Amputation 3/1 21% Failure

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Pz 82 Y with AF presented with acute limb ischemia

Indigo plus rTPA bolus (5mg) and 3 hours infusion (2mg/h)

Acute limb ischemia

Why VAT performs better in BTK than in ATK?

- ATK - unknown underlying chronic pathology
- ATK - mismatch between the vessel and the catheter
- BTK - thrombus is soft - acute iatrogenic event
- BTK - thrombus is short - less thrombotic burden

MOST IMPORTANTLY: the thrombotic load!!

↓↓ no (or short) lytic therapy

↑↑ longer lytic therapy and failure in BTK&ATK

......beyond the lower limbs

- 9 vessels (50% prosthetic branches)
- 100% success rate (no adjunctive therapy)
- Excessive blood loss the main potential complication

AAR after open AAA repair with aorto-renal bypass

Pt with coma presenting with acute mesenteric ischaemia from vein thrombosis

Indigo "out-of-lower limb" case series

Pt with coma presenting with acute mesenteric ischaemia from vein thrombosis

Pz Date

Lesion

TIMI PRE TIMI POST

Adjunctive Procedures

Notes

C F

Reimplanted renal artery 0 2 Stent Graft Renal function improved

C M

Renal artery 1 2 no Renal function improved

R A M

Brachial artery 0 0 surgery Failed

L A

AVF 0 0 no Failed

V A

06/02/17 Pulmonary artery 0 2 no PA Pressure & Respir. Status Improved

P N

Pulmonary artery 0 2 no PA Pressure & Respir. Status Improved

C L

Pulmonary artery 0 2 no PA Pressure & Respir. Status Improved

F G

Sup Mesenteric Vein 0 1 surgery exitus

Indigo "out-of-lower limb" case series

Pt Date

Lesion

Adjunctive Procedures Notes

C F 10/8/17 Reimplanted renal artery 0 2 stent graft Renal function improved

C F 10/8/17 Brachial artery 0 2 surgery Failed

C F 10/8/17 Aorta 0 2 ref Failed

C F 10/8/17 Aorta 0 2 surgery Failed

C F 10/8/17 AVF 0 0 no Failed

V A 06/02/17 Pulmonary artery 0 2 no PA Pressure & Respir. Status Improved

P N 28/02/18 Pulmonary artery 0 2 no PA Pressure & Respir. Status Improved

C L 21/09/17 Pulmonary artery 0 2 no PA Pressure & Respir. Status Improved

F G 14/07/17 Sup Mesenteric Vein 0 1 surgery exitus
Conclusions

This technology is an option for quick thrombo-embolic ALI treatment.

Very effective for BTK intraprocedural embolic events.

The main advantage is a speeding up the blood flow reestablishment without prolonged thrombolysis.

Complete “cleaning up” of extensively thrombosed vessels is IMPOSSIBLE without local lytic therapies!!!!!!

Indigo technology is promising and effective for treatment of acute renovisceral artery occlusion and sub massive pulmonary embolism.

Key Points

- Why percutaneous thrombectomy
- How Indigo Works
- Evidence

Desirable feature in Thrombectomy devices: ease to use

Penumbra Indigo Device: a simple IDEA!

- Near pure vacuum
- continuous aspiration
- pressure of -29 inchHg / 98.2 kPa

- Proven track record of success in ischemic stroke therapy
Submassive Pulmonary Embolism poorly responding to heparin. After 15 days still tachycardia and exercise intolerance

- Mixture of old and acute thrombus
- Removing or modification of the thrombus burden
- Increase the cross sectional area of the pulmonary tree
- Reduce PA pressure and increase the pulmonary perf.