Single Center Randomized Study Comparing Primary Stenting and Percutaneous Transluminal Angioplasty for High-grade Central Venous Lesions in the Outflow of Dialysis Fistulas

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Disclosure

Speaker name:
Cristina Riguetti-Pinto

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
Central Venous Lesion Ipsilateral to Dialysis Fistula

Lesion Ethiology

Hyperplasia:
- Previous line placement
- Venous Arterialized Flow – AVM like lesion

Extrinsic Compression:
- Aortic Arch
- Brachiocefalic Trunk
- Thoracic Outlet
- Iliac Artery
Question

Which is the best treatment?

PTA X Stenting

1. Primary Technical Success
2. Clinical Success
3. Patency
### Angioplasty of Central Venous Stenosis

<table>
<thead>
<tr>
<th>Report</th>
<th># Cases</th>
<th>Technical success</th>
<th>1° Patency</th>
<th>6 Month Assisted</th>
<th>1° Patency</th>
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<td>50%</td>
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<tr>
<td>Kovalik (1994)</td>
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<td>93%</td>
<td>88%</td>
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<tr>
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<td>47</td>
<td>⋯</td>
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<td>⋯</td>
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<td>86%</td>
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<td>86%</td>
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<tr>
<td>Kim (2009)</td>
<td>26</td>
<td>93%</td>
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<td>100%</td>
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<tr>
<td><strong>Weighted average</strong></td>
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<td><strong>90%</strong></td>
<td><strong>57%</strong></td>
<td><strong>84%</strong></td>
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Central Venous Stenosis Treated with Bare Metal Stent After Failed PTA

<table>
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<tr>
<th>Report</th>
<th># Cases</th>
<th>Technical success</th>
<th>1° Patency</th>
<th>6 Month Assisted</th>
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<td>2009</td>
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<td>Shoenfeld et al</td>
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<td>19</td>
<td>retro</td>
<td>Primary Stent</td>
<td>10 wallstent + 8 palmaz</td>
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</table>
Self-expanding Open Cell Nitinol Stent

Self-expanding Closed Cell Elgiloy Stent
Methods

• Single Center Prospective Randomized Trial
• End Point: PTA x Stent
• Inclusion Criteria:
  ESRD
  Venous hypertension ipsilateral to an AV fistula in use
  First treatment
• 04 groups
Venous Angiography

- Lesion classification: stenotic/total occlusion
- Site of lesion
Methods

• SA : stenotic lesion + Angioplasty = 20
• SS : stenotic lesion + Stenting = 20
• OA : total occlusion + Angioplasty = 20
• OS : total occlusion + Stenting = 20

Total: 80 patients
Randomization

- Lesion successful recanalization
- Simple Randomization Applied
- A (PTA) ou S (Stenting)
Methods

• **Primary technical success**
  -olla >30%
  -Thrombosis
  -Rupture

• **Clinical Success**
  Total or partial symptoms relief:
  -Pain, edema, collateral circulation

  **Primary Patency**
  6 months reintervention free

**Physical Examination**
Duplex scan
Venous Angiography
Trial Suspension Criteria

• Primary technical failure >50%
Results

• 28 months (feb/11 – jun/13)
• Total of patients: 124
• Excluded: 39
• Not crossable: 18
• Treated: 67

Total = 68 lesions
Results

Mean Age

Comorbidities
Results = 68

**Symptoms**

- Stenosis
- Occlusion

![Image of symptoms](image_url)
Results = 68

Ipsilateral Doble Lumen Catheter (DLC)
Self expandable open cell nitinol Stent = 46
Results

Per Procedural Complications = 4% (3/68)

- Bleb = 1
- Balloon rupture = 1
- Perforation = 1

No Clinical Relevance!!!

Follow up lost = 03
Results – Group S (Stenotic Lesion)

PTA
• Primary technical success: 80% (4 recoils)
• Restenosis 6mo: 2
• Primary patency: 88%
• Lost follow up: 0

TOTAL: 20

STENT
• Primary technical success: 95%
• 1 recoil
• Restenosis 6mo: 0
• Primary Patency: 100%
• Lost follow up: 1

TOTAL: 20
Results – *Primary Technical Failure - SS*
Results – Group O (total occlusion)
Suspension Criteria

**PTA**
- Primary Technical Success: 45%
- Primary Technical Failure: 55%
- Primary patency 6 mo: 50%
- Lost follow up: 1

**STENT**
- Primary technical success: 100%
- Primary Technical Failure: 0
- Primary patency 6 mo: 75%
- Lost Follow up: 1

**TOTAL: 15**

**TOTAL: 13**
Conclusion

We recommend Primary Open Cell Nitinol Self-expanding stents for Central Venous Lesions ipsilateral to Dialysis AV-fistulas

- **Stenotic Lesions = higher primary patency in 6 mo**
- **Total Occlusions = higher primary technical failure for PTA**
Thank you!
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