Present Status Of Drug Eluting Devices In Tibial Artery Endovascular Treatments

Veith 2015

Disclosures

• Specific Disclosures
  – None

• General Disclosures
  – None

DCB News

“I have not failed. I've just found 10,000 ways that won’t work.”

Thomas Eddison

Pathophysiology and burden of restenosis

The pathophysiology and burden of restenosis

WS Weintraub
Am J Cardiol 2007; 100(suppl):9k-9k.

Pathophysiology

- Arterial remodelling
  - Expansive remodeling
  - Constrictive remodeling
- Intimal hyperplasia
- RESTENOSIS

Infrapopliteal PTA Meta-analysis

• Technical success rates
  – 80–100 %
• Primary patency
  – at 6 months 65±7%
  – at 12 months 58±5%
• Limb salvage
  – at 6 months 88±4%
  – at 12 months 90±2%
Infrapopliteal PTA vs. Pop-Tibial bypass

<table>
<thead>
<tr>
<th></th>
<th>PTA</th>
<th>Bypass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Patency - 6 months</td>
<td>65±7%</td>
<td>86±2%</td>
</tr>
<tr>
<td>12 months</td>
<td>58±5%</td>
<td>83±2%</td>
</tr>
<tr>
<td>Limb Salvage - 6 months</td>
<td>88±4%</td>
<td>91±2%</td>
</tr>
<tr>
<td>12 months</td>
<td>86±3%</td>
<td>91±2%</td>
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<tr>
<td>60 months</td>
<td>75±3%</td>
<td>76±2%</td>
</tr>
<tr>
<td>Amputation Free Survival</td>
<td>38%</td>
<td>37%</td>
</tr>
<tr>
<td>60 months</td>
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UT VASCULAR

DES vs. DEB

<table>
<thead>
<tr>
<th></th>
<th>DES</th>
<th>DEB</th>
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<tbody>
<tr>
<td>Platform of drug delivery</td>
<td>Stent scaffolding</td>
<td>Balloon</td>
</tr>
<tr>
<td>Retention</td>
<td>Polymer based</td>
<td>Embedded imprinted</td>
</tr>
<tr>
<td>Drug dose</td>
<td>Low: &lt;300 to 200 μg</td>
<td>High: 300 to 600 μg</td>
</tr>
<tr>
<td>Release kinetics</td>
<td>Slow and controlled</td>
<td>Fast release</td>
</tr>
<tr>
<td>Distribution</td>
<td>Strut-based vascular penetration</td>
<td>Balloon surface homogenous distribution</td>
</tr>
<tr>
<td>Advantages</td>
<td>Mechanical support</td>
<td>Leave no implant</td>
</tr>
<tr>
<td></td>
<td>Abdominal trapping</td>
<td>Larger surface area</td>
</tr>
<tr>
<td></td>
<td>Less drug spillage into the circulation</td>
<td>Less drug localization in the vessel wall</td>
</tr>
<tr>
<td></td>
<td>Proven efficacy in many indications</td>
<td>Accessible to complex lesions and long segments</td>
</tr>
<tr>
<td></td>
<td>No acute recoil, tackled dissection</td>
<td>May not require prolonged DAPT</td>
</tr>
</tbody>
</table>

UT VASCULAR

DCB News

“Failure isn’t fatal, but failure to change might be”

John Wooden

UT VASCULAR

Issues

- Biology of the Patient
- Pathology of the vessels
- Spectrum of Disease
- Pharmacology
- Delivery
- Duration
- Cost

UT VASCULAR
Issues

- Biology of the Patient
  - Diabetic
  - ESRD
  - High Rutherford Grade
  - High WiFi Stage

- Pathology of the vessels
  - Long
  - Small
  - Outflow Track involved
  - Mechanically Disadvantaged

- Spectrum of Disease
  - Heterogenous
  - Diffuse
  - Complex
  - Responds poorly if prior intervention
  - Size

- Pharmacology
  - One drug
  - Based on coronary literature
  - Duration
  - What Targets?

- Delivery
  - Should we pre-treat?
    - Stent
      • Apposition
      • Mechanical advantage
      • Longer Dwell time
    - Balloon
      • Unsure apposition
      • No mechanical advantage
      • Short dwell time

- Duration
  - Stent vs. Balloon
  - How deep
  - How Long
  - Repeat therapy
Issues

• Cost
  – Can we afford it?
  – NICE recommendations

Future

• Prevention
• Infusion Balloons
• Nano Particles
  – Penetration
  – Drug cocktail
  – Imageable
• Intramural therapy
• Bio-scaffolds
• Personalized

Success is not final, failure is not fatal: it is the courage to continue that counts.

Winston Churchill

www.ehow.com/winston-churchill