Peripheral vascular morbidity and its treatment in diabetic patients with renal failure

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Disclosure

Speaker name. M Edmonds

I have the following potential conflicts of interest to report:

- Consulting Urgo, Bayer,
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

☐ I do not have any potential conflict of interest
Outline

Peripheral Vascular Morbidity
Necrosis
• Lower limb
• Upper limb

Integrated Management
• Endovascular
• Arterial bypass
• Multidisciplinary care
Peripheral vascular morbidity

Small vessel calcific occlusive disease

- Diabetes with renal failure
- Diabetes alone
Calcified digital arteries
Occluded DPA and 1st metatarsal artery
Crossed with guidewire
Balloon dilatation-2mm of DPA and
1.5 mm of 1st metatarsal artery

- Digital recanalisation (D.Huang)
Digital artery recanalisation

PRE

POST
Ultradistal bypass with anastomosis at common plantar artery. Poor distal flow into the lateral plantar artery and arch.

• Hybrid revascularisation
Distal bypasses in chronic renal failure (CRF) and non renal failure (NRF) groups.

<table>
<thead>
<tr>
<th>Recipient vessel</th>
<th>N=135</th>
<th>CRF (N=39)</th>
<th>NRF (N=96)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPT (9%)</td>
<td>12</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>AT (30%)</td>
<td>40</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>PT (29%)</td>
<td>39</td>
<td>7</td>
<td>32</td>
</tr>
<tr>
<td>PeA (14%)</td>
<td>20</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>DP+plantar (18%)</td>
<td>20+4</td>
<td>8+1</td>
<td>12+3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Indication</th>
<th></th>
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<th>P=</th>
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</thead>
<tbody>
<tr>
<td>Gangrene</td>
<td>35</td>
<td>14 (35%)</td>
<td>21 (21%)</td>
</tr>
<tr>
<td>Tissue loss</td>
<td>76</td>
<td>20 (51%)</td>
<td>56 (58%)</td>
</tr>
<tr>
<td>Rest pain</td>
<td>24</td>
<td>5 (12%)</td>
<td>19 (19%)</td>
</tr>
</tbody>
</table>
Kaplan-Meier Curve of 1 year amputation-free survival rates in distal bypass between the CRF and NRF groups.
Kaplan-Meier Curve of the secondary patency rates in distal bypass between the CRF and NRF groups.
Upper limb necrosis
Stenosis at distal radial artery

Palmar arch is heavily calcified.

Ulnar artery is occluded distally.
Occlusion dilated with a 1.5 mm and a 2mm balloon
Occluded distal radial artery at wrist
Radial to palmar arch bypass with cephalic vein (H.Slim)
Dialysis patient - Necrosis of ring finger
Right brachial to distal ulnar bypass (H.Slim)
Angioplasty of distal anastomosis and run-off
Subsequently had Jump graft from distal ulnar to palmar arch (H.Slim)
Interosseous artery with multiple collaterals

Then developed rest pain left hand
Incomplete palmar arch

Left distal brachial to distal ulnar reversed basilic vein bypass with relief of pain (H.Slim)
Conclusion

• Significant foot and hand morbidity in diabetes with chronic renal failure (also occurs without renal failure)

• It needs aggressive arterial revascularisation

• Arterial bypasses just as successful in renal failure as in normal renal function
‘Pedal-Plantar Loop’ Technique

• Pedal-Plantar Loop Technique

Dean Huang
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