Contrast saving strategies for BTK recanalisation with the ARROW GPScath

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Disclosure

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I have the following potential conflicts of interest to report:

☒ Consulting (Medtronic, Teleflex)
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☒ I do not have any potential conflict of interest
Why reduce contrast injection?

Patients with contrast induced nephropathy have an increased length of hospital stay and higher rates of in-hospital cardiovascular events, in hospital mortality

Strategies to reduce risk of CIN

**PREPROCEDURAL CARE**

1) Optimize patient's hemodynamic
   - avoid dehydration
   - anaemia treatment

2) Optimize medical treatment
   - if possible eliminate ACE inhibitors
   - if possible minimize diuretics
   - avoid non-steroidal anti-inflammatory and antibiotics

3) Avoid periprocedural imaging with nephrotoxic contrast medium
Strategies to reduce risk of CIN

PROCEDURAL CARE

1) Use of iso-osmolar contrast media (290 mOsm/kg)

2) Reduce the contrast media volume

3) Pharmacological interventions (N-acetylcysteine, ascorbic acid, and statins)
The risk of RCIN is minimal in patients receiving < 100 mL contrast\(^1\)

The only predictor of RCIN in patients with pre-existing CKD was volume of contrast administered\(^2\)

V/eGFR ratio $\geq 2.39$ was a significant and independent predictor of CIN\(^3\)

2) Kane GC et al. J Am Coll Cardiol 2008; 51:89-9
3) Liu Y et al. Int Urol Nephrol 2012; 44:221-229
If above the knee disease is excluded in pre-procedural imaging:
- reduce above the knee angiographic control
- perform angiographic control with a road-mapping injecting only 1-2 cc of contrast medium
- go straight to BTK level
BTK recanalization should be performed using a **2-in-1 technique** using a **GPScath balloon** in order to limit the contrast volume.

GPScath balloon is an innovative multipurpose balloon that combines angioplasty and target injection system in one device.
GPScath balloon – 2 in 1 technique

A switch allows the control of a Visio Valve located proximal to the balloon.

In “balloon mode”, inflation of a high-pressure semicompliant angioplasty balloon is performed as with standard inflation device.

In “fluid delivery mode”, delivers fluids, such as contrast, without losing access or needing to adjust wire position. A selective antegrade angiography is possible with only 1-2 cc of contrast.
### Previous experience in SFA lesion using GPSScath balloon

<table>
<thead>
<tr>
<th></th>
<th>GPS (38 lesions)</th>
<th>Control (31 lesions)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic total occlusions, n %</td>
<td>6 (15.8)</td>
<td>2 (6.5)</td>
<td>ns</td>
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<tr>
<td>Procedure, n %</td>
<td></td>
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<tr>
<td>Intraluminal</td>
<td>33 (86.8)</td>
<td>29 (93.5)</td>
<td>ns</td>
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<tr>
<td>Subintimal</td>
<td>5 (13.2)</td>
<td>2 (6.5)</td>
<td>ns</td>
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<tr>
<td>Need to change balloon, n %</td>
<td>5 (13.2)</td>
<td>3 (9.7)</td>
<td>ns</td>
</tr>
<tr>
<td>Balloons movements, n %</td>
<td>1.5±2.0</td>
<td>2.1±1.3</td>
<td>ns</td>
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<tr>
<td>Catheter exchange</td>
<td>0</td>
<td>0.26±0.7</td>
<td>0.02</td>
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<td>Stent, n %</td>
<td>16 (42.1)</td>
<td>10 (32.3)</td>
<td>ns</td>
</tr>
<tr>
<td>Primary end-point, n%</td>
<td>33 (86.8)</td>
<td>28 (90.3)</td>
<td>ns</td>
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<tr>
<td>Mean Balloon diameter, mm±SD</td>
<td>5.34±0.79</td>
<td>5.31±0.51</td>
<td>ns</td>
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<tr>
<td>Mean Balloon length, mm ±SD</td>
<td>41.3±7.1</td>
<td>35.9±25.8</td>
<td>ns</td>
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<tr>
<td>Time procedure, min±SD</td>
<td>6.7±8.9</td>
<td>7.1±4.6</td>
<td>ns</td>
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</tbody>
</table>
Case

Female
69 yo
Diabetic
Chronic Renal failure
Forefoot
TEXAS III C ulcer
Case

GPScath balloon
2,5x150 mm
Case

“balloon mode” inflation at 15 atm of the occluded vessels

Tapered tip profil designed to cross the toughest lesions
Case

Before

After
Case

Male
52 yo
Atrial Fibrillation
Hypertension

Acute limb ischemia 5 month ago
Rest pain
Rutherford IV

Occlusion of ATA, ATP
Recanalization of ATA with a 0.014 Abbot Command guidewire supported by a GPScath ballon 2.5x80 mm

Angiographic control with 2 cc contrast medium
Case

Dilatation of the occluded ATA

Angiographic control from GPS cath balloon
Case
Conclusions

The best strategy to prevent RCIN is reduce the amount of contrast

GPScath ballons allows to perform selective angiography reducing the amount of contrast for each control (1-2 cc x injection) and to reduce the procedure time with the 2 in 1 technique

Associated to CO$_2$ Angiography could improve outcomes in the group of athletes.
THANK YOU FOR THE ATTENTION