Impact And Significance Of Drug Effects and Downstream Embolization With Different DCBs

Renu Virmani, MD
CVPath Institute Inc.
Gaithersburg, MD.
USA

Disclosure Statement of Financial Interest

Speaker’s name: Renu Virmani, MD
Within the past 12 months, I or my spouse/partner have financial interest/arrangement or affiliation with the organization(s) listed below.

Employment in industry: No
Owner of a healthcare company: No
Stockholder of a healthcare company: No
Some statements are interpretations of the expert who is presenting the data

Elements of an Effective DCB Formulation

- Must deliver large quantities of the drug within seconds
- Distribute within the media in the first few days
- Therapeutic drug levels must be maintained for more than 4 weeks
- Must allow rapid healing as compared to DES
- No need for long-term anti-platelet therapy
- Biologic effects must be observed by histology at 28-days
- Effective drug delivery to target tissue while avoiding non-target effect (i.e. minimize emboli)

Three Case Reports for Downstream Effect of DCB Use: Particulate Embolization Related?


IN.PACT ADMIRAL™ MAINTAINS GREATER DRUG IN TISSUE

- While there is expected variability among studies, IN.PACT™ Admiral™ consistently provides higher PTFE tissue concentration than Lutonix™ DCB through 90 days.
- Reaches maximum for both IN.PACT™ Admiral™ and Lutonix™ DCB post-24 hours, but IN.PACT™ Admiral™ achieves sustained effect through slow release of solid-phase paclitaxel reservoir.

<table>
<thead>
<tr>
<th>Device</th>
<th>Device Company</th>
<th>Drug Coating</th>
<th>Drug dose (µg/mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN.PACT</td>
<td>Medtronic Vascular, Santa Clara, CA, USA</td>
<td>Paclitaxel-urea</td>
<td>3.5</td>
</tr>
<tr>
<td>Lutonix</td>
<td>Bard, Murray, HI, USA</td>
<td>Paclitaxel-polysorbate/sorbitol</td>
<td>2.0</td>
</tr>
<tr>
<td>Ranger</td>
<td>Boston Scientific, MN, USA</td>
<td>Paclitaxel-urea/polysorbate</td>
<td>2.0</td>
</tr>
<tr>
<td>Stellarex</td>
<td>Spectranetics, Mansfield, MA, USA</td>
<td>Paclitaxel-urea/polysorbate</td>
<td>2.0</td>
</tr>
</tbody>
</table>
In. Pact DCB vs. Stellarex vs. Ranger
The Second Comparative Study

- Same swine model - 28 day study
- 3x dose, same size DCB
- DCB inflated for 60 secs
- Blinded-device ID
- Same sampling method and evaluation endpoints as the first Lutonix vs. IN.PACT comparative study

LEF

Treatment Scheme:
A total of 2 treated sites in the external femoral arteries (left or right) in each pig

3x IN.PACT Tx site
3x Ranger or Stellarex Tx site

LIF

- Same swine model - 28 day study
- 3x dose, same size DCB
- DCB inflated for 60 secs
- Blinded-device ID
- Same sampling method and evaluation endpoints as the first Lutonix vs. IN.PACT comparative study


Representative histologic sections of femoral arteries following IN.PACT vs. Ranger vs. Stellarex, dose 3X, 28 days

IN.PACT

Ranger

Stellarex

Histologic Vascular Changes following IN.PACT vs. Ranger vs. Stellarex, dose 3X, at 28 days

IN.PACT

Ranger

Stellarex

Downstream Incidence of Distal Embolization (%)

Overlapping Balloons (3x), 28-Day Survivor

IN.PACT

Ranger

Stellarex

Downstream changes following IN.PACT vs. Ranger vs. Stellarex, dose 3X, at 28 days

IN.PACT

Ranger

Stellarex

DCB Design: All About Balancing Safety, Efficacy, and Biologic Response
Not all balloons are created equal.
Question

- What is a potential complication that could occur as a result of downstream particulate embolization after DCB use?

a, vasculitis
b, panniculitis
c, all of the above

Answer

- What is a potential complication that could occur as a result of downstream particulate embolization after DCB use?

a, vasculitis
b, panniculitis
c, all of the above

Recently, 3 case reports demonstrated patients with painful rashes in lower leg, 1-2 weeks after DCB treatment suggesting downstream particulate emboli may have resulted in vasculitis or panniculitis. The rash disappeared in 3-4 weeks after the oral steroid treatment.