The Method of Balloon-TACE

High Efficacy Balloon-TACE (B-TACE) requires consideration of simple hemodynamics. In addition to 8 B-TACE clinical studies, six studies were published that reveal an understanding of B-TACE and a procedural method that produces high efficacy. All six publications reach the same conclusions and are included in the bibliography. Two publications, that provide the most detail, are presented herein.

Simple Hemodynamics of B-TACE
1. An occlusion of the supply artery leading toward the tumor means that the hemodynamics is governed by the collaterals
2. Collaterals can be high or low pressure
3. Flow redistribution in favor of the tumor requires a pressure reduction distal to the balloon to <64 mmHg
4. The tip of the microcatheter must be distal to high pressure collaterals for pressure to lower
5. Balloon catheter placement (Superselective/Subsegmental) enables flow redistribution, high-pressure injection & high efficacy
6. In rare instances, balloon occlusion can cause the flow to move away from the tumor. Inject with balloon down

### Kakuta A, 2016
Prospective, 27 patients (219 nodules)
Measured balloon occluded pressure at four arterial levels

<table>
<thead>
<tr>
<th>Artery</th>
<th>% Low Pressure*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Order, Lobar</td>
<td>67%</td>
</tr>
<tr>
<td>2nd Order</td>
<td>70%</td>
</tr>
<tr>
<td>3rd Order</td>
<td>82%</td>
</tr>
<tr>
<td>Superselective</td>
<td>+90%</td>
</tr>
</tbody>
</table>

*Percentage of pressure measurements distal to the balloon occlusion that were below 64mmHg and flow redistribution is enabled.

### Matsumoto T, 2015
Retrospective, 47 patients (87 arteries)
Measured balloon occluded pressure at lobar, segmental, & subsegmental levels

<table>
<thead>
<tr>
<th>Artery</th>
<th>% Low Pressure*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lobar</td>
<td>38%</td>
</tr>
<tr>
<td>Segmental or Subsegmental</td>
<td></td>
</tr>
<tr>
<td>• A1, A4, A8</td>
<td>58%</td>
</tr>
<tr>
<td>• A2, A3, A5, A6, A7</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Percentage of pressure measurements distal to the balloon occlusion that were below 64mmHg and flow redistribution enabled

Flow redistribution increases as the balloon catheter is moved distally. Distal tip placement is required for high efficacy.

Flow redistribution increases as the balloon catheter is moved distally and the center of the liver shows less flow redistribution at segmental level.

Blood Pressure Reduction via Balloon Occlusion

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References

Available upon request or can be found at https://embolx.com/publications/


