The concept of focal stenting-
Lessons learned and future perspectives

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Disclosure

I have the following potential conflicts of interest to report:

Advisory Board and Consultant:

  BAYER AG
  Boehringer Ingelheim
  UCB Pharma
The concept of focal stenting - Lessons learned and future perspectives

No data - no lessons to learn!
It is good to be less invasive - *but not enough*: we must become *superior* to open vascular surgery.
Management of problems

Primary Patency
In long lesions (> 40-50mm) fem.-pop

Progress of disease

- medication
- training

The longer the lesion............
Longer lesions (> 40-50mm) in long lesions

Progress of disease

Recoil

Flip

Dissection

Covered stent

Viabahn stent

Medication

Training

Management of problems
Management of problems

Primary Patency
In long lesions (> 40-50mm) fem.-pop

Drug elution
DEB-DES

Progress of disease
Recoil
Flap Dissection
Early Intimal hyperplasia

• medication
• training
• stent
• covered stent
• Viabahn

The longer the lesion............
Management of problems

Primary Patency
In long lesions (> 40-50mm) fem.-pop

Drug elution
DEB-DES

Tack
BVS
D-BVS
Spot-stenting

Progress of disease
Recoil
Flap
Dissection
Early Intimal hyperplasia
Ongoing vessel wall trauma („conformability“)
↓↓
Late Remodeling
Long lasting Trauma

• medication
• training
• stent
• covered stent
• Viabahn

Achille`s heel: foreign body

The longer the lesion- the longer the stent → ongoing trauma

LL
Studies 2007-2013

**all tools**

![Graph showing lesion length vs. patency rate for different tools from 2007 to 2013.](image)

**POBA**

1° Stents
LUMINEXX
SMART
Protege
LifeStent
Astron 18
Absolute
Zilver
Supera

DES
Zilver PTX

DEB
Thunder

Viabahn

K. Amendt 2014
Studies 2007-2013

Nitinol Stents
no drug

Lesion Length (mm)

Studies 2007-2013

Nitinol Stents
no drug
randomized

Lesion Length (mm)
# Focus on Stents

<table>
<thead>
<tr>
<th>accepted ind.</th>
<th>effect</th>
<th>problem</th>
<th>consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>lesions &gt; 4-5 cm</td>
<td>enlarge and stabilize vessel-lumen ↑ = scaffold</td>
<td>foreign body</td>
<td>Remodeling</td>
</tr>
<tr>
<td>elastic recoil</td>
<td></td>
<td>• intimal hyperpl.</td>
<td>Re-stenosis</td>
</tr>
<tr>
<td>fl-dissection/flap</td>
<td></td>
<td>• fracture/ong. trauma</td>
<td>Re-occlusion</td>
</tr>
<tr>
<td>calcification</td>
<td></td>
<td>• bending</td>
<td>Late LL ↑</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• pulsatile</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Do not cure atheroscleros.</em></td>
<td></td>
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</table>
# Focus on Stents

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</table>
| lesions > 4-5 cm | enlarge and stabilize initial vessel-lumen = scaffold | *Induce „stent-disease“*  
- Foreign body intimal hyperpl.  
- fracture/ong. trauma bending (joints) pulsatile (all regions) do not cure atherosclerosis | Re-stenosis  
Re-occlusion |
| elastic recoil | | | |
| fl-dissection/flap | | | |
| calcification | | | |

The longer the lesion - the longer the stent: full lesion coverage

<table>
<thead>
<tr>
<th>tricks</th>
<th>problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>no stent: „Tack“</td>
<td>low radial force</td>
</tr>
<tr>
<td>DES</td>
<td>data temp. limited success</td>
</tr>
<tr>
<td>biodegradable stent</td>
<td>calcification?</td>
</tr>
<tr>
<td><strong>spot stent</strong></td>
<td>how short?</td>
</tr>
</tbody>
</table>
Different ways from long lesion to patency

"Stairway to heaven?"

"Long and winding road“ -hightech-

Initial therapy of long fem.-pop. lesion
The concept of focal stenting - Lessons learned and future perspectives

DEB alone won't do the job! DEB + spot stenting is the answer?
how short is spot ??
The concept of focal stenting - Lessons learned and future perspectives

Custom length stent
5 x 80mm

Domestic pig

Multi-Loc
Multi-Stent-Delivery-System: 5 x 15 mm x 5

angiographic control 27d after implantation
The concept of focal stenting - Lessons learned and future perspectives

DEB alone won't do the job!
DEB + spot stenting is the answer?

5 x 13 mm multiple
multi LOC
Multiple Stent Delivery System

Multi-Loc
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