Rationale for IVUS guided abdominal aneurysm repair
LINC 2019

Jörg Tessarek MD
Vascular Center Emsland
Bonifatius Hospital Lingen
Germany
Disclosure

Speaker name:

.....Jörg Tessarek MD........................................................

I have the following potential conflicts of interest to report:

× Consulting: Abbott, AB medica, Phillips Volcano, Taryag medical

X honoraria : Abbott, AB medica, Phillips Volcano, Medtronic, Terumo aortic

X research grants : Abbott
strong rational for IVUS instead of angiographic guidance aorto-iliac procedures

<table>
<thead>
<tr>
<th>Iodinated contrast media</th>
<th>IVUS</th>
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<tbody>
<tr>
<td>• Kidney function impairment</td>
<td>• None</td>
</tr>
<tr>
<td>• Contrast induced nephropathy (0-44%)</td>
<td>• None</td>
</tr>
<tr>
<td>• Allergic reactions</td>
<td>• None</td>
</tr>
<tr>
<td>• Thyreoidal disorders</td>
<td>• None</td>
</tr>
<tr>
<td>• Bubbles/ stroke</td>
<td>• None</td>
</tr>
<tr>
<td>• High energy radiation</td>
<td>• None</td>
</tr>
</tbody>
</table>

1D imaging                                      3D imaging
Independent from artefacts

- Bowel gas, bowel motility, residuals from previous examinations, Onyx...

- Vertebral implants, OR associated artefacts such as cables, any kind of contrast giving material
Independant from artefacts and imaging quality

- Soft tissue ...

- Limited imaging quality ...
Active radiation protection: optimal workflow without oblique projections maintaining the table position (with a single Angiorun ??)
IVUS fits to all settings: 80x80cm console with single table/ c-arm position and optimal radiation protection

Source: MAVIG Website 2019
Life 3D imaging for PAU
After placement: wall apposition, crimping, stenosis...
Significant Reduction of Air Kerma (radiation pollution in the local setting, scattered radiation) in mGy

![Bar chart showing Air Kerma and number of images for different procedures.](image)

- Fluoroscopy: 10 images, 0.11 mGy
- Angiography: 10 images, 10.58 mGy
- RAO angio: 13 images, 24.39 mGy

All data collected from a standard SID 105cm, C-arm position RAO 2°, caudal 2° and RAO 49°.
Significant Reduction of Dose Area Product mGy/cm²

Pre Clarity: 201078 (34)  
Post Clarity: 109383 (44)  
IVUS/angio: 48876 (23)  
IVUS: 21232 (6)

p = 0.0038  p = ??  P = ??
Strong rational for IVUS instead of angiographic guidance (any kind of aortic procedure)

- IVUS is 3D imaging in a single projection
- reduction of contrast, DAP and Air Kerma (part of active radiation and kidney protection policy)
- fits to any workflow in the OR (hybrid/ mobile C-arm)
- For any kind of aortoiliac procedure
- Allows exact measurements / on table planning even with no flow (REBO) in the elective and emergency situation
- Well accepted as first line imaging tool in venous procedures
Old fashioned technique from the 90`s: Safety? Reliability?

Segesser et al. EJVES (2002) 23; 537-542

- Prospective comparison of IVUS (n=49) vs. Angio (n=31)
- **Mortality 7% for angio, 0% for IVUS**
- Contrast 190cc for angio, zero cc for IVUS
- **IVUS for (standard) EVAR and TEVAR is safe, reliable and easy to use**
  - In most cases periprocedural angiography is not necessary
  - causes not more complications compared to x-ray guidance
  - Demands not more secondary interventions for EL...
Thank you for your attention

joerg.tessarek@hospital-lingen.de
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