What Morphological Changes On CT After EVAR Predict The Need For Re-Interventions: From The DREAM Trial

Jan D Blankensteijn on behalf of the DREAM-trial collaborators
THG van Schaik, Jan D Blankensteijn

Disclosure
Speaker name:
Jan D. Blankensteijn
- I have no potential conflicts of interest to report:

Aortic neck
- greater angulation
- more calcification
Common iliac artery
- thrombus
- tortuosity

Prediction of secondary interventions using preoperative CT

- Sac diameter
  - Secondary sac growth

Prediction of secondary interventions using postoperative CT

- Aortic neck
  - greater angulation
  - more calcification
- Common iliac artery
  - thrombus
  - tortuosity

Freedom from reintervention

Hypothesis

1. Increase of the neck diameter predicts proximal type I EL and proximal migration
2. Aneurysm shrinkage predicts iliac limb occlusion
DREAM trial methods

- All patients had FU CTA at 1M, 6M, 12M, 18M, and 24M.
- CT measurements entered on the CRF's:
  - Preoperative forms:
    - Angulation
    - Neck diameter
    - Maximal aneurysm diameter
    - Neck length
    - Length from most caudal renal artery to aortic bifurcation
  - Postoperative forms:
    - Neck diameter at the anastomosis
    - Maximal aneurysm diameter
    - Length from most caudal renal artery to aortic bifurcation

Baseline characteristics

<table>
<thead>
<tr>
<th>Baseline characteristic</th>
<th>Endovascular repair (n=171)</th>
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<tbody>
<tr>
<td>Age (years)</td>
<td>71 ±6.6</td>
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<tr>
<td>Male (%)</td>
<td>161 (93.1%)</td>
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<tr>
<td>Maximal aneurysm diameter</td>
<td>60.6 ±9.0</td>
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</table>
| Aneurysm neck:
  - Diameter            | 23.7 ±3.3                   |
  - Length              | 24.6 ±10.6                  |
| Mural thrombus thickness >2mm | 12 (6.9%)                |
| Irregularity           | 20 (11.6%)                  |
| Angulation (>60°)      | 15 (8.7%)                   |
| Short neck (<10mm)     | 6 (3.5%)                    |

Reinterventions

Including 18 reinterventions for proximal neck complications and 19 reinterventions for thrombo-occlusive complications.

CT measurements

- Maximal Neck Diameter at the proximal anastomosis
- Maximal aneurysm Diameter
- Length from most caudal renal artery to aortic bifurcation

Baseline characteristics

Reinterventions

Including 18 reinterventions for proximal neck complications and 19 reinterventions for thrombo-occlusive complications.
Aortic length and Reinterventions

Neck diameter changes

Diameters compared to preoperative measurements

Mean Aneurysm Neck Diameter (in mm)

Maximal Neck Diameter

Follow-up Moment

NAR

12 Months

18 Months

24 Months

No proximal neck complications

Reintervention for proximal neck complications

N=135

N=16

N=120

N=17

N=117

N=13

P=0.19

P=0.54

P=0.89

Prediction of thrombo-occlusive complications

Maximal Aneurysm Diameter (in mm)

Follow-up Moment

NAR

12 Months

18 Months

24 Months

No thrombo-occlusive complications

Reintervention for thrombo-occlusive complications

N=x139

N=11

N=124

N=9

N=122

N=8

P=0.026

P=0.26

P=0.18

Conclusion

CT changes in the first two months after EVAR

• Neck diameter was not predictive of neck-reinterventions (type 1A EI & migration)

• Sac diameter shrinkage is associated with iliac limb reinterventions (limb thrombosis)

• Aneurysm length was not predictive of iliac limb reinterventions (limb thrombosis)