Preoperative screening for aortic atherosclerosis with modified transesophageal echocardiography in transcatheter aortic valve implantation.

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Introduction
- Transcatheter aortic valve replacement (TAVR) is still associated with an increased risk of perioperative cerebral complications1-2.
- By including pre-operative diagnostic information by modified transesophageal echocardiography (TEE A-View) about the degree of atherosclerosis into a decision algorithm, this could lead to a selection of the most appropriate access route and a reduction of cerebral embolic events3-5.


Purpose
This study focuses on the occurrence of the first choice advice deviations and the incidence of cerebral complications after TAVR.

Methods
A single-center prospective cohort study was performed, which included 58 consecutive TAVR patients operated in 2013-2014 and within this group three different access routes were investigated.

• The approach was transfemoral (TF) in 65.5%, transapical (TA) in 22.4% and direct aortic (DA) in 12.1%?
• The overall incidence of in hospital stroke was 8.6%, but differed between the different access routes (13.2% in TF, 0% in TA and 0% in respectively the DA group, p=0.24).
• Deviation from the first choice advice based on the additional diagnostic TEE A-View information was 45%, 16% and 28% in respectively the TF, TA and DA group.

Conclusion
• Deviation from the additional TEE information about atherosclerosis and the incidence of stroke after TAVR was most in the TF group.
• Optimal imaging by modified TEE with A-View will help to guide the surgeon and cardiologist to choose the safest access route, tailor-made for the TAVR patients, in order to reduce peri-operative cerebral embolic events.

Conflict of Interest: none

Keywords:
TAVR, TEE A-view, stroke, treatment algorithm

Figure 1 Schematic and clinical view of TEE A-view
Clinical view: 1 = trachea; 2 = posterior wall of DAA; 3 = anterior wall of DAA; 4 = arrow = atherosclerotic grade 3 plaque

Intra-operative TEE Report form

Figure 2 Intra-operative TEE Report form
Grade 1 = normal aorta to mild intimal thickening,
Grade 2 = severe intimal thickening without protruding atheroma,
Grade 3 = protruding atheroma ≤ 5 mm into lumen,
Grade 4 = protruding atheroma ≥ 5 mm into lumen,
Grade 5 = mobile atheroma

Figure 3. a. Approach, b. Incidence of stroke, c. Deviation from advice

TF
TA
DA

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TF
TA
DA

Figure 3. a. Approach, b. Incidence of stroke, c. Deviation from advice

Conflict of Interest: none