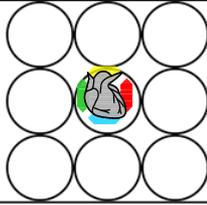


Session VI. Evidence-Based Medicine CornerII: Focus on TEVAR Complications

Stroke Risk after TAVR: Results from a large Meta-Analysis

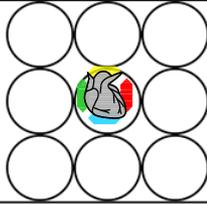
Raimund Erbel, Philipp Kahlert, Holger Eggebrecht
West-German Heart Center Essen, University Duisburg-Essen
Cardioangiological Center **Bethanien** (CCB), Frankfurt
Germany





I, Raimund Erbel, Essen, Germany
have no conflict of interest for this presentation
and the topic TAVR itself.

Aim of our Study



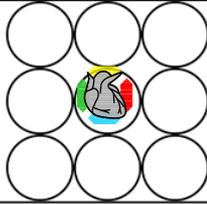
Meta-Analysis of risk of stroke in patients undergoing TAVR as one of the major complication and threat after PARTNER demonstrating the risk to be

5.5 % and 8.3 % for TF TAVR and

2.4 % and 4.3 % for TA TAVR

at 30 days and 1 year

Methods



Research for: transcatheter, transfemoral, transapical, percutaneous,
aortic, valve, implantation
English literature in MEDLINE database

Time window: January 1, 2004 to November 11, 2011

Stage analysis:

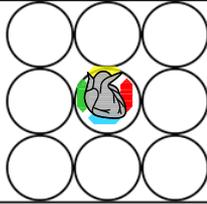
1. original articles selected after checking the abstracts

Exclusion: case reports, valve-in-valve TAVR, reviews

2. Full text version analysis for data extraction

For multiple reports, the most recent and complete data set selected

Methods

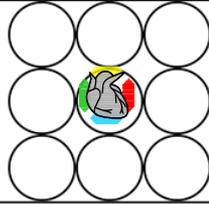


Research for: transcatheter, transfemoral, transapical, percutaneous,
aortic, valve, implantation
English literature in MEDLINE database

Group 1: Medtronic/CoreValve
2. TF Edwards Sapien
3. TA Edwards Sapien

Definition: TIA reversible neurological deficit with duration < 24 h
Stroke not reversible neurological deficit
Procedural stroke/TIA defined as any event < 24 h after TAVI

Results/ Demographics



728 citations between January 1, 2004 and November 11, 2011

53 studies selected with 10,037 patients

Gender F	53.1 ± 7.6 %
Age	81.5 ± 1.8 years
Log Euro Score	24.8 ± 5.6 %
CV disease	19.0 ± 7.1 %
Previous stroke	11.4 ± 6.1 %
Porcelain aorta	11.9 ± 7.4 %
Atrial fibrillation	24.8 ± 6.8 %
TF TAVR	66.5 ± 29.9 %
Transaxillary TAVI	2.7 ± 8.4 %
TA TAVR	30.8 ± 40.0 %
Medtronic CoreValve	41.8 ± 42.8 %
Edwards Sapien	57.2 ± 42.4 %

Eggebrecht H et al ,

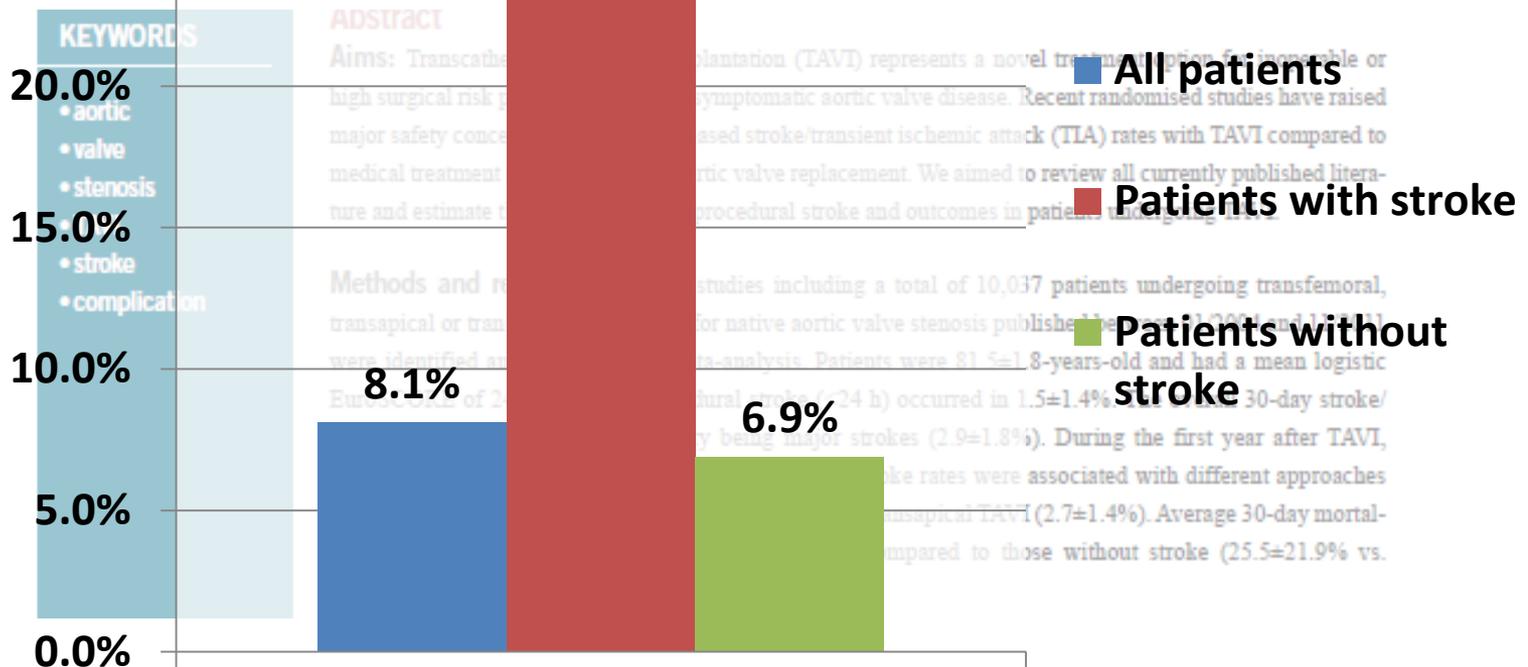
EuroIntervention 2012, 8: 129-138

Risk of stroke after transcatheter aortic valve implantation (TAVI): a meta-analysis of 10,037 published patients

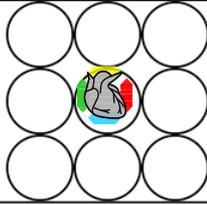
Eggebrecht¹, MD, FESC, Axel Schmermund¹, MD, FESC, Thomas Voigtlaender¹, MD, FESC; Philipp Kahler², MD; Raimund Erbe¹, MD, FESC, FACC, FAHA; Rajendra H. Mehta³, MD, MS

¹ Cardioangiologisches Center Bethanien (CCB), Bethanien Hospital, Germany; ² Department of Cardiology, West-German Heart Center Essen, University Duisburg-Essen, Essen, Germany; ³ Duke University Medical Center, Durham, NC, USA

30 day mortality



Results: Stroke/TIA



728 citations between January 1, 2004 and November 11, 2011
53 studies selected with 10,037 patients

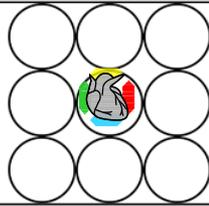
812 events

Procedural stroke < 24 h	1.5 ± 1.4 %
30 day stroke/TIA	3.3 ± 1.8 %
30 day major stroke	2.9 ± 1.8 %
30 day minor stroke/TIA	1.0 ± 1.3 %
30 day mortality	8.1 ± 3.9 %
30 day mortality in stroke pts	25.5 ± 21.9 %
30 day mortality no stroke	6.9 ± 4.2 %
6 months stroke	4.3 ± 1.6 %
12 months stroke	5.2 ± 3.4 %

Eggebrecht H et al,

EuroIntervention 2012, 8: 129-138

Results: Stroke/TIA: comparison of different valves

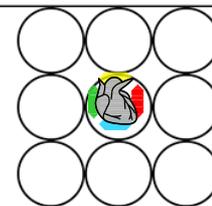


	Medtronic CoreValve	Edwards Sapien
Patient/N	2733	1733
Age/years	81.1 ± 1.3	82.3 ± 2.6
Log EuroScore/%	22.1 ± 3.7	25.6 ± 4.2
Procedural stroke < 24 h/%	1.4 ± 1.5	2.1 ± 3.0
30 day stroke/TIA %	3.1 ± 2.2	4.2 ± 2.2
30 day major stroke/%	2.5 ± 1.8	3.0 ± 2.0
30 day minor stroke/TIA %	0.7 ± 1.4	1.7 ± 1.8
30 day overall mortality/%	6.4 ± 5.1	6.9 ± 3.8

Eggebrecht H et al ,

EuroIntervention 2012, 8: 129-138

Results: Stroke/TIA comparison of different routes



	Transfemoral Edwards Sapien 1733	Transapical Edwards Sapien 1733
Patient/N	1733	1733
Age/years	82.3 ± 2.6	81.0 ± 1.6
Log EuroScore/%	25.6 ± 4.2	29.1 ± 7.5
Procedural stroke < 24 h/%	2.1 ± 3.0	0.7 ± 1.5
30 day stroke/TIA %	4.2 ± 2.2	2.7 ± 1.4
30 day major stroke/%	3.0 ± 2.0	2.5 ± 1.5
30 day minor stroke/TIA %	1.7 ± 1.8	0.8 ± 1.4
30 day overall mortality/%	6.9 ± 3.8	10.6 ± 4.2

Eggebrecht H et al ,

EuroIntervention 2012, 8: 129-138

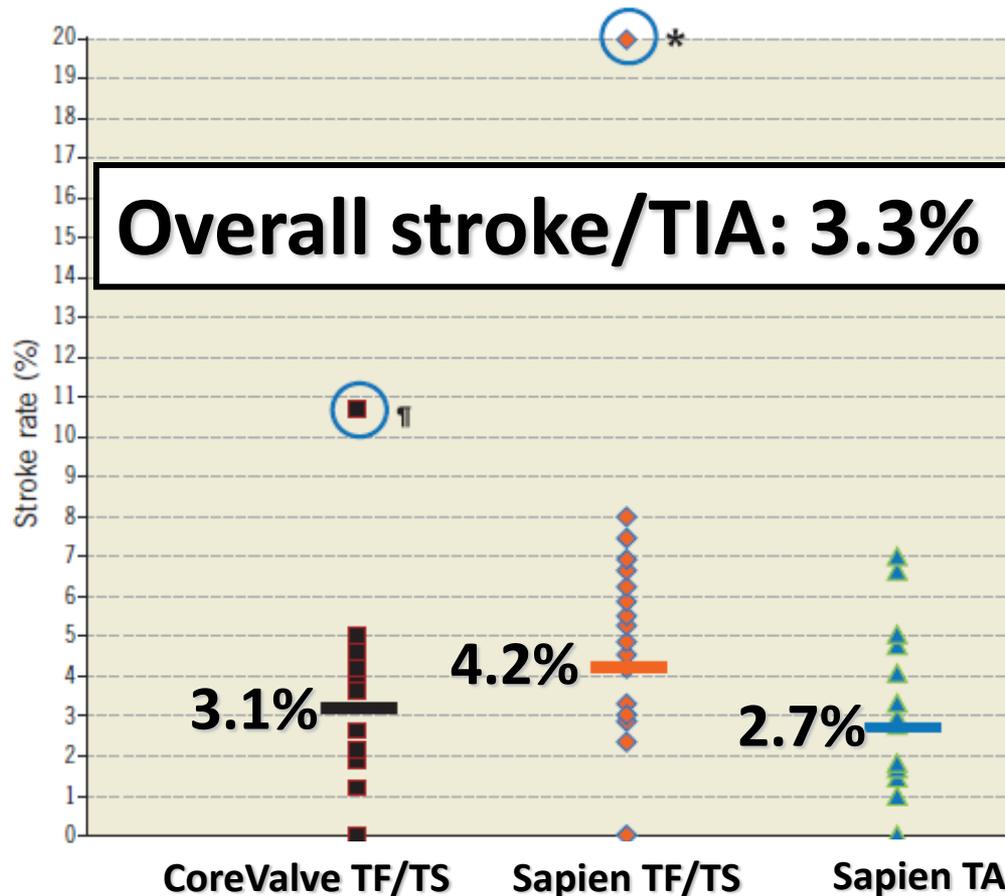
Risk of stroke after transcatheter aortic valve implantation (TAVI): a meta-analysis of 10,037 published patients

Holger Egge
Philipp Kah

I. Cardioangi
Essen, Univer

KEYWORDS

- aortic
- valve
- stenosis
- TAVI
- stroke
- complication

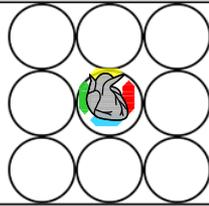


Heart Center

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ear after TAVI,
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5.5±21.9% vs.

Results: Stroke/TIA: comparison of different regions

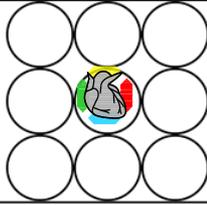


	USA/Canada	Europe
Patient/N	1.677	8.360
Valve type	Edwards	Edwards/MCV 50/50
Age/years	82.6 ± 1.7	81.2 ± 1.7
Log EuroScore/%	28.4 ± 4.3	24.3 ± 5.7
Procedural stroke < 24 h/%	1.1 ± 0.8	1.7 ± 1.6
30 day stroke/TIA %	4.7 ± 1.9	3.1 ± 1.7
30 day major stroke/%	3.8 ± 2.0	2.6 ± 1.7
30 day minor stroke/TIA %	1.8 ± 1.5	0.7 ± 1.2
30 day overall mortality/%	8.1 ± 3.7	8.1 ± 4.0

Eggebrecht H et al ,

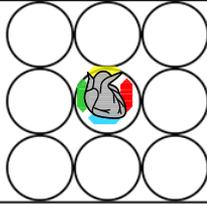
EuroIntervention 2012, 8: 129-138

Limitations of the Study



- no focus on stroke during the procedure
- minor strokes underestimated
 - as 87 % of all strokes were major strokes
- no standardized definition of neurologic events according to the VARC criteria
- lack of control groups managed medically or by AVR
- nearly only historical controls

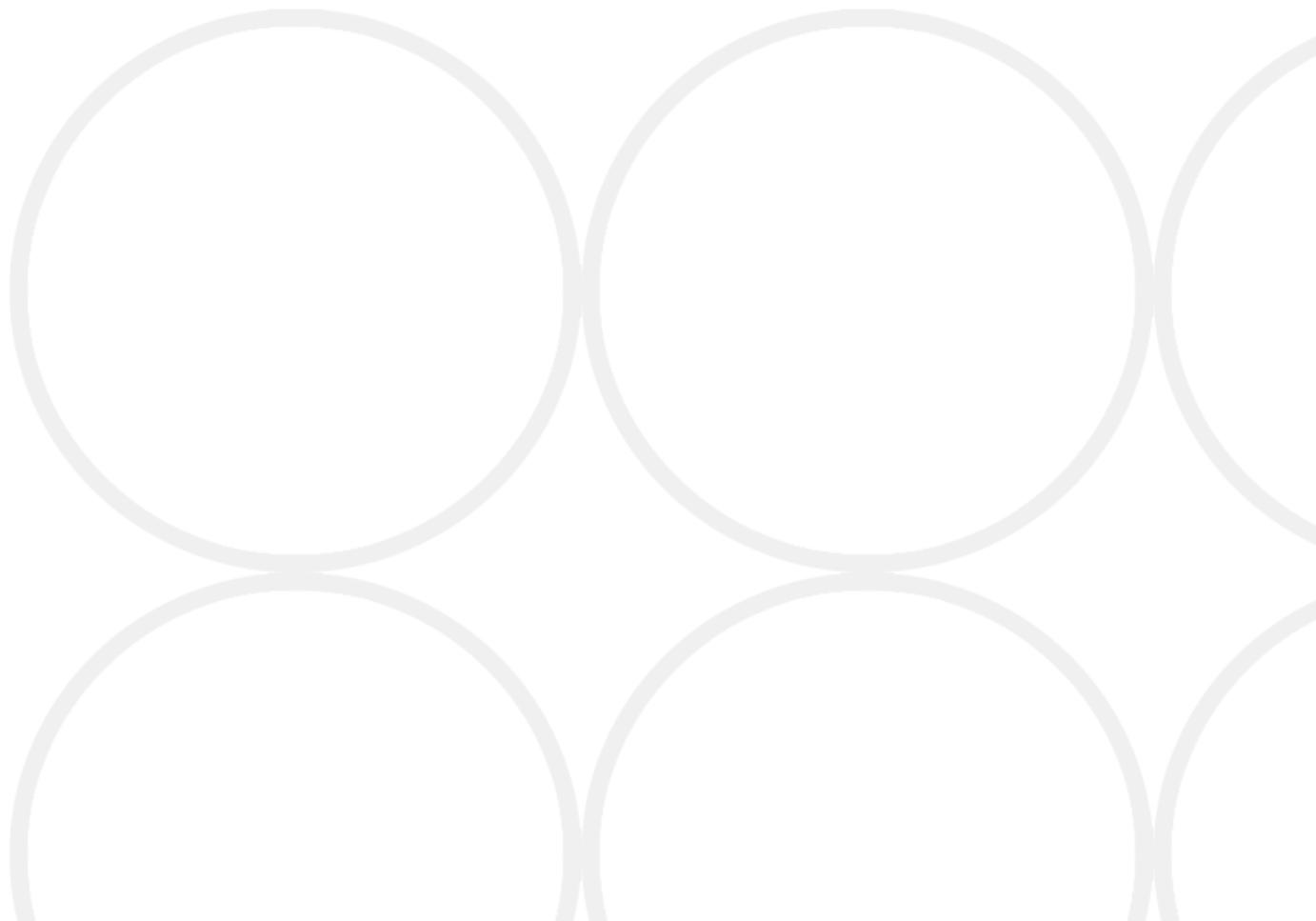
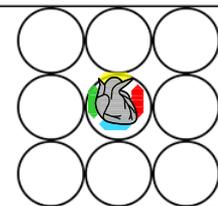
Conclusion



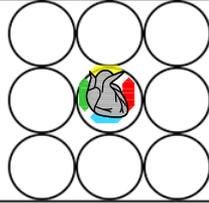
- in 10.037 patients receiving TAVR stroke risk 3.3 ± 1.8 %
- 1-year rate remains low with 5.2 ± 3.4 %
- 6/7 strokes are major rather than minor meaning disability
- 50 % persistent neurological problems
- TA Edwards lowest event rate
- TF Medtronic/CoreValve lower rate than TF Edwards Sapien

- Corresponding PARTNER B medical therapy
1.7 % 30 day and 4.5 % 1-year stroke/TIA

Thus, stroke/TIA are a severe complication and all efforts have to be addressed in order to reduce these disabling events



Conclusion



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VIEWPOINT

The Problem With Asymptomatic Cerebral Embolic Complications in Vascular Procedures

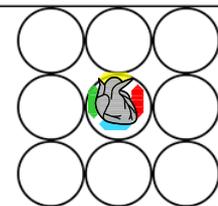
What If They Are Not Asymptomatic?

decline, and dementia related to these so-called silent infarcts. Literature reports of magnetic resonance imaging events lead to an estimate of as many as 600,000 patients with new brain injury each year in the United States alone. Given the magnitude of the numbers involved, the impact of accelerated cognitive loss and premature senescence in a vulnerable at-risk population could well be significant. (J Am Coll Cardiol 2012;xx:xxx)

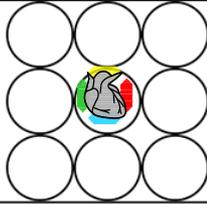
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decline, and dementia related to these so-called silent infarcts. Literature reports of magnetic resonance imaging events lead to an estimate of as many as 600,000 patients with new brain injury each year in the United States alone. Given the magnitude of the numbers involved, the impact of accelerated cognitive loss and premature senescence in a vulnerable at-risk population could well be significant. (J Am Coll Cardiol 2012;xx:xxx)

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Methods



Research for: transcatheter, transfemoral, transapical, percutaneous,
aortic, valve, implantation
English literature in MEDLINE database

Statistics

Individual rates for different studies and combination of these rates
into a weighted average

Weights defined as the proportion of available patients provided
in a specific study

