



Results of Comprehensive Cognitive Function Assessment in Elderly Patients Undergoing TAVI

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Disclosure- None

Background

- ▶ Severe aortic stenosis (AS) is common among elderly patients and is associated with progressive symptoms, impaired functional status and lower quality of life (QOL).
- ▶ Successful surgical valve replacement is known to alleviate symptoms and improve functional status in addition to extending survival¹.

¹Sundt TM, et al. *Circulation* 2000.

Background

- ▶ TAVI has rapidly emerged in recent years as an alternative to surgery in high risk elderly patients with severe AS¹.
- ▶ It is associated with increased risk for stroke and “silent” cerebral ischemia which may result in neurocognitive decline and functional dysfunction².
- ▶ Conversely, improved systemic perfusion and symptom alleviation following TAVI may improve cognitive and functional status.

¹Smith CR *et al.* PARTNER Trial Investigators. *N Engl J Med* 2011.

²Généreux *et al.* *J Am Coll Cardiol* 2012.

Background

- ▶ For elderly patients, improvement in heart failure symptoms, functional status, and QOL may be more important than longevity.
- ▶ Currently, little is known about outcome measures such as: cognitive function, functional status and QOL following TAVI.

Aim

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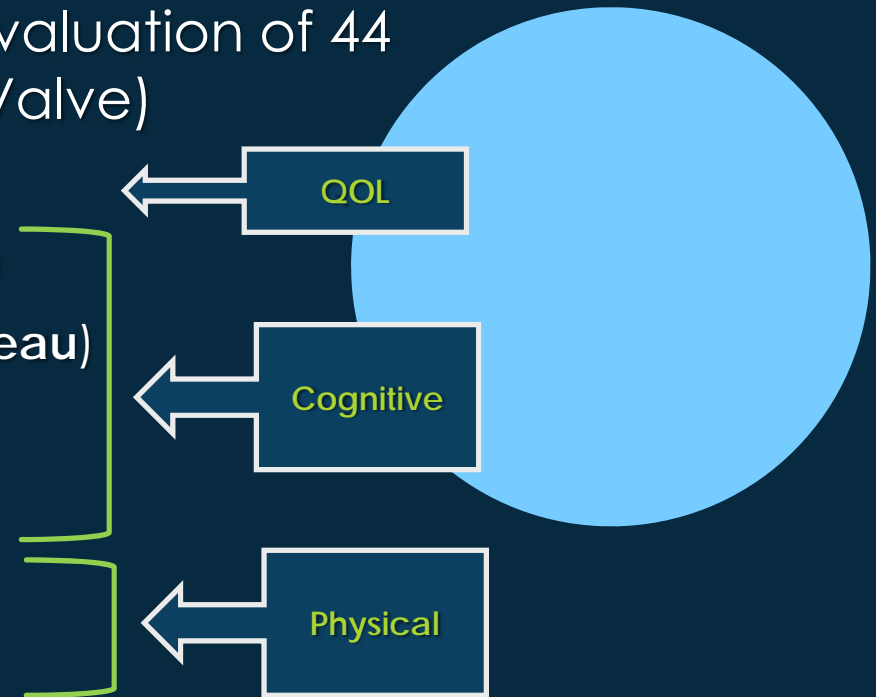
- ▶ To evaluate the changes in the cognitive performance and functional status following TAVI procedure.



Methods

► We performed a comprehensive evaluation of 44 consequential TAVI patients (CoreValve)

- Short form 36 health survey (SF-36)
- Mini-Mental status examination (MMSE)
- Quantitative Clock Drawing Test (Rouleau)
- Color Trail Test (CTT1 and CTT2)
- Cognistat
- Barthel Index Scoring (BI)
- Duke Activity Status Index (DASI)



► Baseline and 1-month

Results

- ▶ 36 TAVI patients completed the pre and post evaluation

Baseline Characteristics	n=36
Mean age (years)	82.2±4.2
Male	19 (52.8%)
Diabetes	11 (30.5%)
Hypertension	32 (88.9%)
Dyslipidemia	30 (83.3%)
Prior CABG	8 (22.2%)
Prior PCI	10 (27.8%)
Prior Stroke	5(13.9%)
Logistic EuroScore (%)	14.9±11.4
STS score (%)	7.4±4.5
NYHA III/IV	34 (94.4%)

Results- TAVI Procedure

- ▶ All patients underwent successful TAVI
 - 100% -NYHA I/II
 - Mean valve gradient improved from 49.5 ± 17.4 to 7.7 ± 4.6 mmHg ($p < 0.001$)

In-hospital Complications	n=36
Vascular complications	6 (16.7%)
Pacemaker	5 (13.8%)
Stroke	1 (2.8%)
Hospitalization duration (days)	4.5 ± 2.8
1-month follow up	
Stroke	0 (0)
Mortality	2/44 (4.5%)

Evaluation Results-

Health Survey	Baseline (n=36)	1-month (n=36)	P value
QOL assessment			
SF-36			
Physical Component Scale	35.3 ±9.5	38.1±10.6	0.24
Mental Component Scale	46.8±9.0	44.0±10.2	0.22
Cognitive assessment			
MMSE /30	25.9±3.3	27.6±2.4	<0.001
Rouleau /10	8.3±1.3	8.2±2	0.27
CTT-1	76.2±20.8	75±18.4	0.89
CTT-2	79±17.8	81±19.2	0.32
Cognistat /6	5±1	5.7±0.7	0.001
Physical assessment			
DASI /58.2	17.3±9.7	17.3±9.8	0.97
Barthel Index /100	90.7±13.1	90.0±17.1	0.95



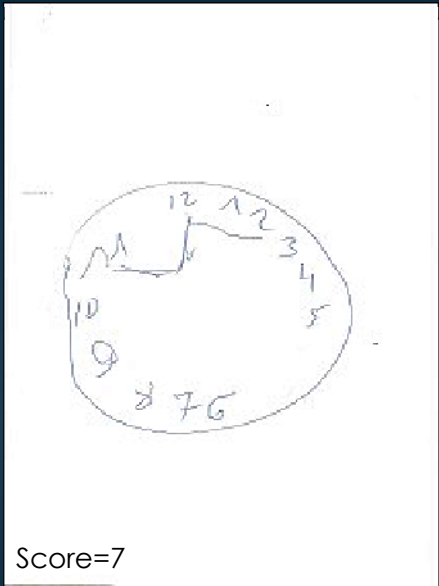




Clock Drawing Test (Rouleau)

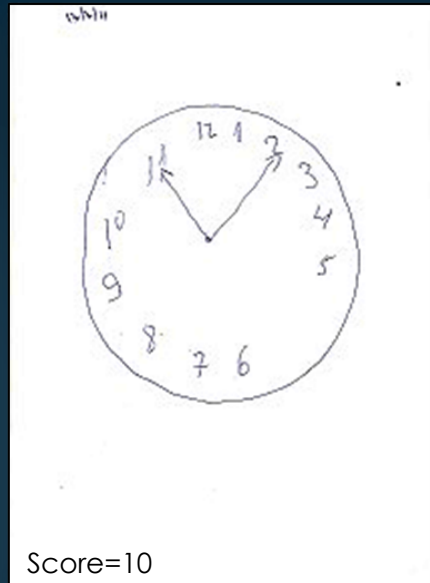
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Patient 1



Score=7

Before TAVI



Score=10

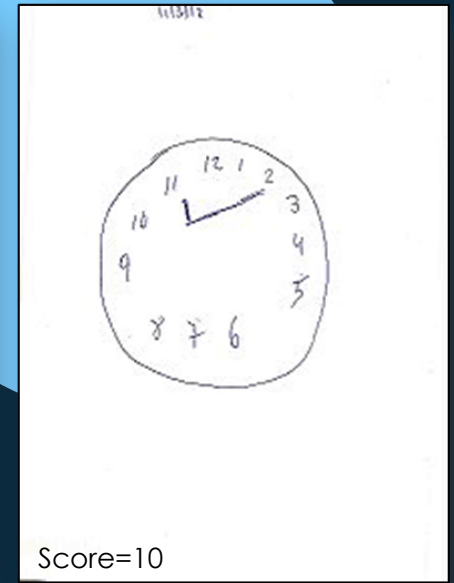
After TAVI

Patient 2



Score =8

Before TAVI



Score=10

After TAVI

Limitations

1. Single center with small sample size study population
2. Short follow up -1-month
3. No surgical control group
4. Lack of brain imaging to correspond with brain insult

Summary and Conclusions

- ▶ Our study is unique for its comprehensive evaluation.
- ▶ Despite its limitation of small sample size, we have shown a significant improvement in the participants' cognitive state.
- ▶ More importantly- no significant deterioration in any of the functions evaluated was observed shortly after TAVI.
- ▶ A larger multicenter trial is needed to validate our findings.

Thank You for Your Attention...

