

TREATING AORTIC VALVE STENOSIS IN DIALYSIS PATIENTS – IS TRANSCATHER AORTIC VALVE IMPLANTATION (TAVI) THE BETTER CHOICE?

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Background

Degenerative aortic stenosis (AS) is the most common symptomatic valve lesion in patients with end-stage renal disease (ESRD). Surgical aortic valve replacement (SAVR) is associated with high morbidity and mortality in dialysis patients. Additionally, short and long term data after SAVR indicates poor results in dialysis patients. Transcatheter aortic valve implantation (TAVI) may therefore offer an alternative treatment. Nevertheless, there are certain characteristics in these patients leading to a special risk profile when considering TAVI. Until now there are only limited data available regarding TAVI procedures in dialysis patients. Aim of this study was to evaluate and compare the clinical outcome of patients on dialysis with AS undergoing either TAVI or SAVR.

Methods

We retrospectively enrolled 64 patients on dialysis who underwent either TAVI (n=26; 2006-2015) or SAVR (n=38; 2005-2015) at our tertiary care center. All patients were followed up in our center or in associated outpatient centers. Treatment-decision was built on interdisciplinary discussion of every single case within the heart-team.

Results

Mean age in the TAVI-group was 72 ± 7.4 years. 16 patients were male (61.5%), 10 female (38.5%). In 8 cases (30.8%) transapical approach was chosen, all others were performed via a transfemoral route. In 5 cases (18.4%) mild vascular complications (hematoma, aneurysma spurium) occurred. Neurological complications were not observed. 4 patients (14.8%) needed pacemaker implantation after the TAVI-procedure. ICU and hospital stay after TAVI were 5.5 ± 2.6 and 21.1±14.6 days, respectively. 1 patient died two days after TAVI due to myocardial infarction and 30 day mortality was 12%. In the SAVR group 30 day mortality already reached 26.5%. Moreover, hospital mortality rose up to 36.8%.

Conclusion

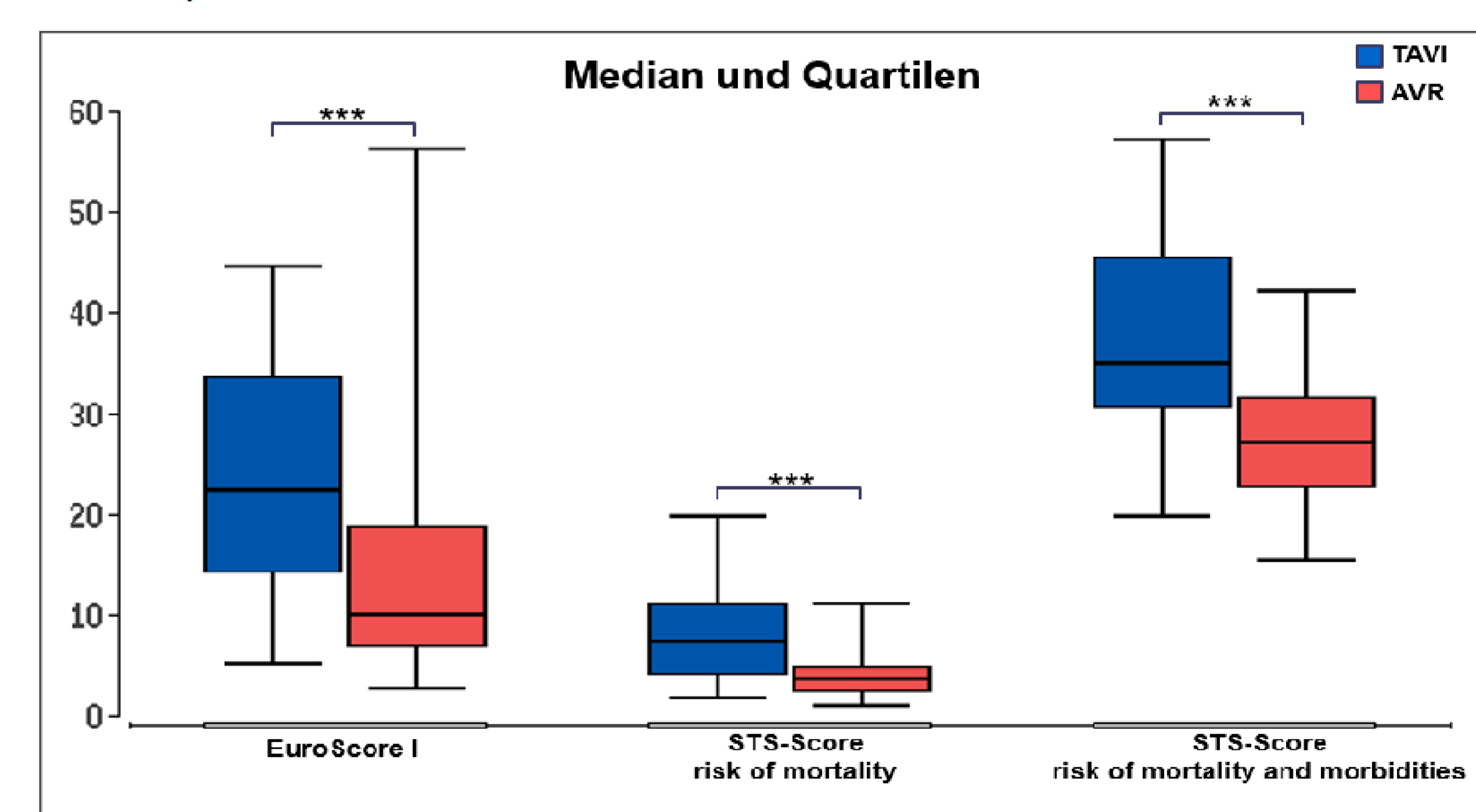
Transcatheter aortic valve implantation is an effective and safe method to treat dialysis patients with high-grade aortic stenosis. In our cohort TAVI is associated with a lower perioperative morbidity and mortality compared to conventional open heart surgery. These data warrant further investigation.

Patient characteristics of study population

Values	All patients n=65 (range)	TAVI n=27 (range)	AVR n=38 (range)	P-value
Demographics				
Age	70.00 (63.50-76.00)	74.00 (68.00-79.00)	67.50 (60.75-74.25)	0.0161
Male gender (%)	76.19 (48/63)	62.96 (17/27)	86.11 (31/36)	0.2100
BMI	25.10 (22.60-28.20)	25.20 (23.15-28.38)	24.20 (22.45-28.10)	0.4664
Comorbidities				
Diabetes mellitus (%)	34.92 (22/64)	48.15 (13/27)	25.00 (9/36)	0.1220
insulin (%)	66.67 (12/18)	83.33 (10/12)	33.33 (2/6)	0.1025
aHT (%)	100.00 (64/64)	100.00 (27/27)	100.00 (36/36)	1.0000
cardiac insufficiency (%)	100.00 (64/64)	100.00 (27/27)	100.00 (36/36)	1.0000
coronary heart disease (%)	82.26 (51/62)	81.48 (22/27)	82.86 (29/35)	0.9326
myocardial infarction (%)	39.68 (25/63)	44.44 (12/27)	36.11 (13/36)	0.5858
cardiac pacemaker (%)	4.76 (3/63)	0.00 (0/27)	8.33 (3/36)	0.5858
CABG (%)	11.11 (7/63)	25.93 (7/27)	0.00 (0/36)	0.0813
CVD (%)	23.81 (15/63)	33.33 (9/27)	16.67 (6/36)	0.2656
peripheral arterial disease (%)	34.92 (22/63)	59.26 (16/27)	16.67 (6/36)	0.0036
atrial fibrillation (%)	49.21 (31/63)	62.96 (17/27)	38.89 (14/36)	0.1060
COPD (%)	39.68 (25/63)	51.85 (14/27)	30.56 (11/36)	0.1556

Data: % (n); median (range)

table 1: patient characteristics



Values	All patients n=65 (range)	TAVI n=27 (range)	AVR n=38 (range)	P-value
EURO-Score I	14.50 (8.70-24.70)	22.4 (14.30-33.70)	10.05 (7.03-18.80)	<0.001
STS-Score				
risk of mortality	4.30 (3.00-7.50)	7.4 (4.20-11.10)	3.60 (2.50-4.88)	<0.001
risk of mortality and morbidities	30.60 (25.40-36.00)	34.9 (30.70-45.50)	27.05 (22.73-31.65)	<0.001

figure 1: pre-operative risk-estimation (red: SAVR, blue: TAVI)

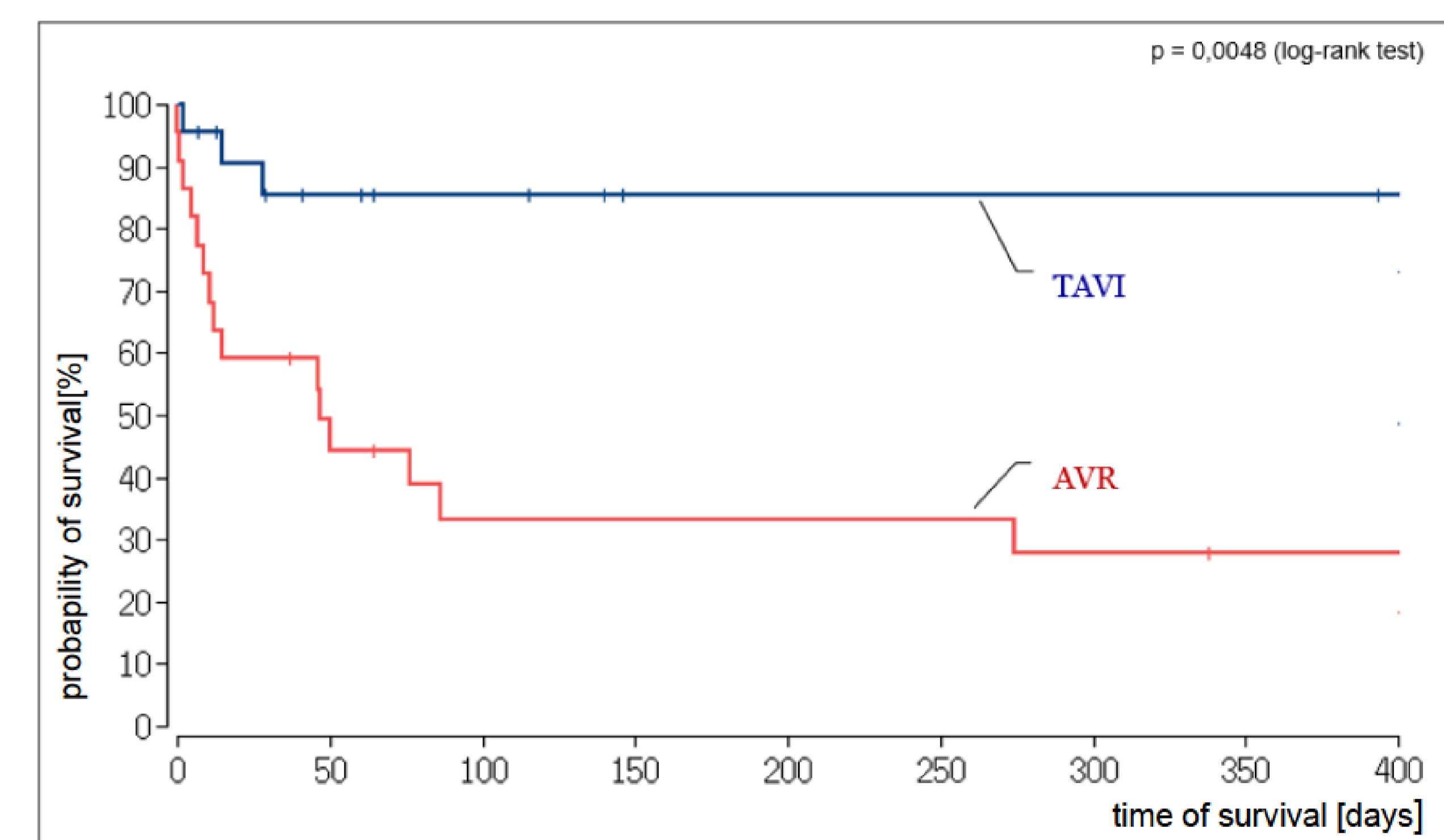


figure 2: one-year survival (red: SAVR, blue: TAVI)

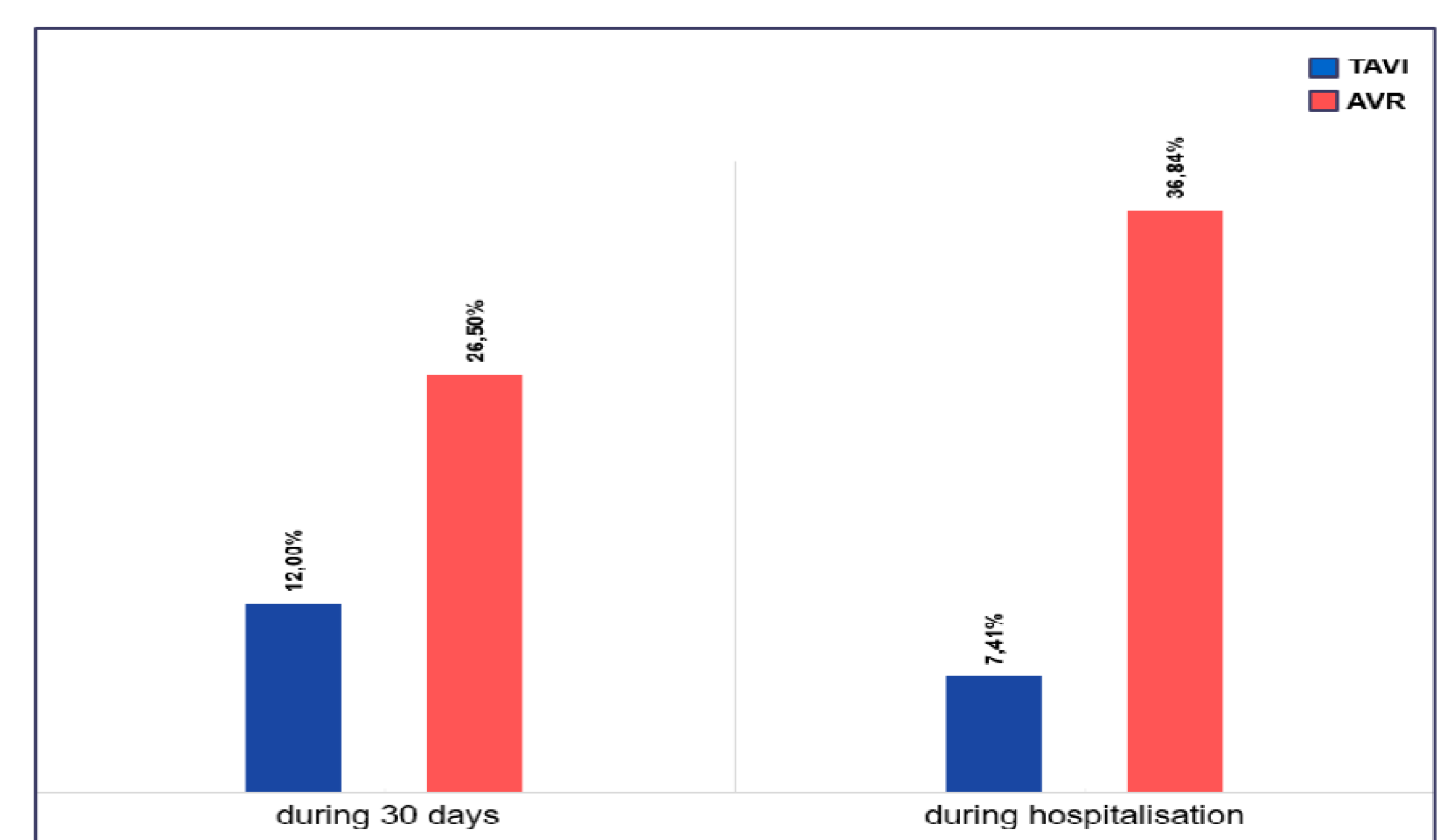


figure 3: 30-day and in-hospital mortality (red: SAVR, blue: TAVI)