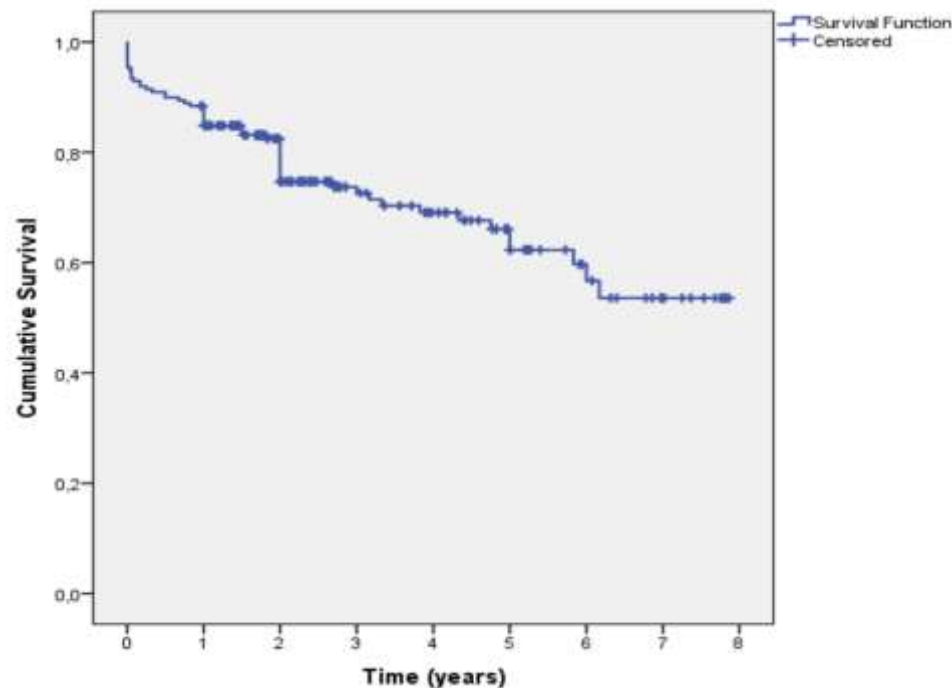


# Perceval-S over time. Clinical outcomes after ten years of usage

Nikolaos Schizas, Ilias Samiotis, Georgia Nazou, Dimitrios C. Iliopoulos, Ioannis Anagnostopoulos, Maria Kousta, Mihalis Argiriou and Panagiotis Dedeilias

**Table 2** Patients' BSA according to valve size

Valve size	BSA
	Median (IQR)
Small	1.67 (1.62 – 1.80)
Medium	1.73 (1.59 – 1.85)
Large	1.81 (1.72 – 1.92)
Extra large	1.91 (1.73 – 2.01)
P Kruskal-Wallis test	<0.001



## Abstract

**Background** Perceval-S has become a reliable and commonly used option in surgical aortic valve replacement (AVR) since its first implantation in humans 15 years ago. Despite the fact that this aortic valve has been proven efficient enough in the short and mid-term period, there is still lack of evidence for the long-term outcomes.

**Objectives:** The purpose of this study is to investigate the clinical outcomes of Perceval-S in the long-term follow-up.

**Materials and methods** This is an observational retrospective study in a high-volume cardiovascular center. Pertinent data were collected for all the patients in whom Perceval-S was implanted from 2013 to 2020.

**Results** The total number of patients was 205 with a mean age 76.4 years. Mean survival time was 5.5 years (SE = 0.26). The overall survival probability of patients undergoing aortic valve replacement with Perceval-S at 6 months was 91.0% (Standard Error SE = 2.0%), at one year 88.4% (SE = 2.3%) and at 5-years 64.8% (SE = 4.4%). A detrimental cardiac event leading to death was the probable cause of death in 35 patients (55.6%). The initiation of Transcatheter Aortic Valve Replacement (TAVR) program in our center in 2017 was associated with a decline in the number of very high-risk patients treated with sutureless bioprosthesis. This fact is demonstrated by the significant shift towards lower surgical risk cases, as median Euroscore II was reduced from 5,550 in 2016 to 3,390 in 2020. Mini sternotomy was implemented in 79,5% of cases favoring less invasive approach. Low incidence of reinterventions, patient prosthesis mismatch and structural valve degeneration was detected.

**Conclusions** The survival rate after aortic valve replacement with implantation of Perceval-S is satisfactory in the long-term follow-up. Cases of bioprosthesis dysfunction were limited. Mini sternotomy was used in the majority of cases. TAVR initiation program impacted on the proportion of patients treated with Perceval-S with reduction of high-risk patients submitted to surgery.

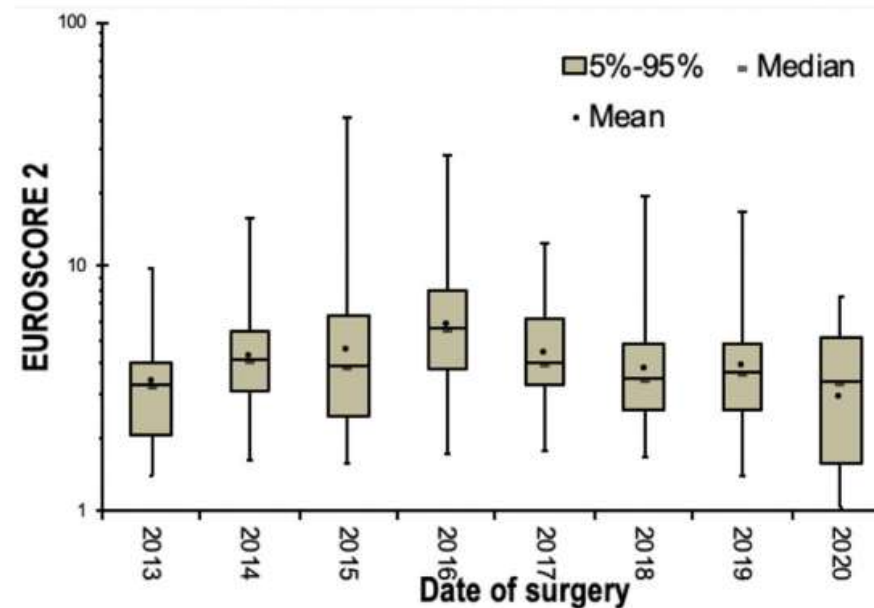
**Table 3** Percentages of surviving and results of univariate Cox regression analysis

	Alive N= 142; 69.3% N (%)	Dead N= 63; 30.7% N (%)	HR (95% CI)+	P
Sex				
Men	47 (67.1)	23 (32.9)		
Women	95 (70.4)	40 (29.6)	0.81 (0.47–1.39)	0.436
Age, mean (SD)	76.6 (5.5)	75.9 (7.1)	0.98 (0.94–1.02)	0.354
BSA, median (IQR)	1.76 (1.64 – 1.92)	1.78 (1.67 – 1.91)	1.66 (0.46–6.05)	0.440
EF%, mean (SD)	52.5 (10.4)	50.7 (10.2)	0.98 (0.96–1.00)	0.105
Valve size				
Small	20 (69.0)	9 (31.0)		
Medium	59 (70.2)	25 (29.8)	0.99 (0.43–2.30)	0.981
Large	40 (67.8)	19 (32.2)	0.90 (0.36–2.21)	0.813
Extra large	23 (69.7)	10 (30.3)	1.15 (0.44–3.02)	0.777
Disease				
Aortic valve stenosis				
No	11 (55.0)	9 (45.0)		
Yes	131 (70.8)	54 (29.2)	0.65 (0.31–1.38)	0.265
Coronary artery disease				
No	103 (72.0)	40 (28.0)		
Yes	39 (62.9)	23 (37.1)	1.70 (0.99–2.94)	0.055
Mixed valvulopathy / insufficiency				
No	130 (71.0)	53 (29.0)		
Yes	12 (54.5)	10 (45.5)	1.67 (0.82–3.40)	0.158
Left main artery disease				
No	137 (69.2)	61 (30.8)		
Yes	5 (71.4)	2 (28.6)	1.37 (0.33–5.65)	0.665
Surgery				
AVR	99 (72.3)	38 (27.7)		
AVR + CABG	39 (61.9)	24 (38.1)	1.82 (1.05–3.13)	0.032
Other	4 (80.0)	1 (20.0)	1.05 (0.14–7.70)	0.962
Total procedural time min, mean (SD)	184.6 (79)	192.3 (75.5)	1.04 (1.01–1.07)	0.026
CPB time min, mean (SD)	107.6 (68.6)	110 (50.6)	1.01 (0.97–1.05)	0.553
Ischemia time min, mean (SD)	64.2 (39.2)	77.3 (94.0)	1.02 (0.99–1.04)	0.205
Lowest temperature	32.7 (4, 9)	32.6 (1, 7)	0.99 (0.91–1.07)	0.747
Cell SAVER	621.4 (255.8)	640.3 (269.5)	1.05 (0.95–0.15)	0.355

+Hazard Ratio (95% Confidence Interval)

**Table 4** Deaths adjusted to causative factors

	N	%
Death related to cardiac event	35	55.6
Death during the early postoperative period (3 months)	16	25.4
Death not related to cardiac event	12	19.0

**Fig. 2** Boxplot depicting Euroscore II in groups of calendar years

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