66. The Favorable Effect of Transcatheter Aortic Valve Implantation on the Rising Healthcare Cost in Patients With Severe Aortic Stenosis

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Body

Background: Transcatheter aortic valve implantation (TAVI) is an innovative treatment for severe aortic stenosis (AS), substituting invasive surgical correction. Despite the rapid expansion of TAVI procedures, studies regarding the impact of TAVI on medical costs are lacking. We investigated the pre- and post-procedural medical costs in patients who underwent TAVI.

Methods: Using the National Health Insurance Service (NHIS) database, we identified patients who underwent TAVI between 2015 and 2020. We analyzed the number and length of hospitalizations during 2 years before and after the TAVI procedure, along with the total medical cost. Regarding medical costs, the payor (NHIS)'s share and patients' share were separately identified.

Results: A total of 2083 patients were identified. The mean age was 79.7 years, including 47.1% male patients, 51.0% had hypertension, and 35.7% had diabetes. During the 2-year follow-up period, all-cause mortality occurred in 463 (22.2%) patients, among which 154 (7.4%) were cardiovascular mortality events. Compared to 2 years pre-TAVI, the number of admissions and length of hospitalizations significantly decreased during 2 years post-TAVI (Number of admissions, -24 months(M)~TAVI vs. TAVI~+24M: 2.4 ± 2.9 vs. 2.1 ± 3.7, P=0.0026; Length of hospitalizations, -24M~TAVI vs. TAVI~+24M: 106.8 ± 93.5 vs. 78.0 ± 98.5, P<0.0001). Regarding the medical cost, no difference was observed in the total medical cost (-24M~TAVI vs. TAVI~+24M: 11,229,000 ± 15,778,000 vs. 10,834,000 ± 19,302,000, P=0.474). However, when comparing 6M pre-TAVI and 6M post-TAVI, TAVI was associated with a lower medical cost. The savings were ₩734,000 in total (5,251,000 ± 6,655,000 vs. 4,517,000 ± 9,595,000, P=0.0045) and ₩572,000 in the payor's share (4,210,000 ± 5,906,000 vs. 3,638,000 ± 8,342,000, P=0.0113).

Conclusion: Comparing 2 years before and after TAVI, the number and length of hospitalizations decreased, while the medical cost was similar. Considering the old age and the comorbidities of the patients who receive TAVI, our results can be interpreted that the TAVI effectively hinders a natural rise of medical costs from ageing and disease progression.

Total number of TAVI patients (2015~2018)		2,083
Age	Mean±SD	79.7±5.6
	≤74	322 (15.5%)
	75-79	590 (28.3%)
	80-84	795 (38.2%)
	85-89	376 (18.1%)
Sex	Male	981 (47.1%)
	Female	1,102 (52.9%)
Comorbidity	Hypertension	1,063 (51.0%)
	Diabetes	744 (35.7%)
	Dyslipidemia	1,153 (55.4%)
	Heart failure	405 (19.4%)
	Myocardial infarction	46 (2.2%)
	Peripheral artery disease	353 (16.9%)
	COPD	254 (12.2%)
	Atrial fibrillation	173 (8.3%)
	Coronary artery disease	661 (31.7%)
	Stroke	123 (5.9%)
	ESRD	43 (2.1%)
	Active malignancy within the past 12 months	10 (0.5%)
Indication for TAVI	Non-rheumatic aortic disease	2,040 (97.9%)
	Rheumatic aortic disease	23 (1.1%)
	Congenital aortic disease	15 (0.7%)
	Multiple valve disease	3 (0.1%)
	Other	2 (0.1%)
Clinical outcomes (up to 2 years after TAVI)	All-cause death	463 (22.2%)
	CV death	154 (7.4%)
	Hospitalization for major bleeding	19 (0.9%)

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	-3M~TAVI (N=2,076)	TAVI~+3M (N=1,984)	P-Value	-6M~TAVI (N=2,080)	TAVI~+6M (N=1,987)	P-Value	-12M~TAVI (N=2,080)	TAVI~+12M (N=1,987)	P-Value	-24M~TAVI (N=2,080)	TAVI~+24M (N=1,987)	P-Value
Medical cost (unit: 1,000 KRW)												
Total (Mean±SD)	3,760±4,653	2,709±6,499	<.0001	5,251±6,655	4,517±9,595	0.0045	7,477±9,820	7,340±13,882	0.7155	11,229±15,778	10,834±19,302	0.474
Patient (Mean±SD)	755±750	516±906	<.0001	1,020±1,008	870±1,448	0.0001	1,433±1,455	1,417±2,090	0.781	2,120±2,170	2,105±3,008	0.8536
Payor (Mean±SD)	2,993±4,126	2,188±5,753	<.0001	4,210±5,906	3,638±8,342	0.0113	6,010±8,671	5,905±12,116	0.7509	9,052±13,938	8,700±16,722	0.4652
Number of admissions												
Mean±SD	1.0±1.1	0.5±1.0	<.0001	1.3±1.4	0.8±1.5	<.0001	1.7±2.0	1.4±2.4	<.0001	2.4±2.9	2.1±3.7	0.0026
Lengths of stay (in days)												
Mean±SD	20.1±15.7	15.2±18.3	<.0001	33.8±27.5	28.3±32.8	<.0001	59.3±50.5	49.9±58.7	<.0001	106.8±93.5	78.0±98.5	<.0001

* M stands for months.

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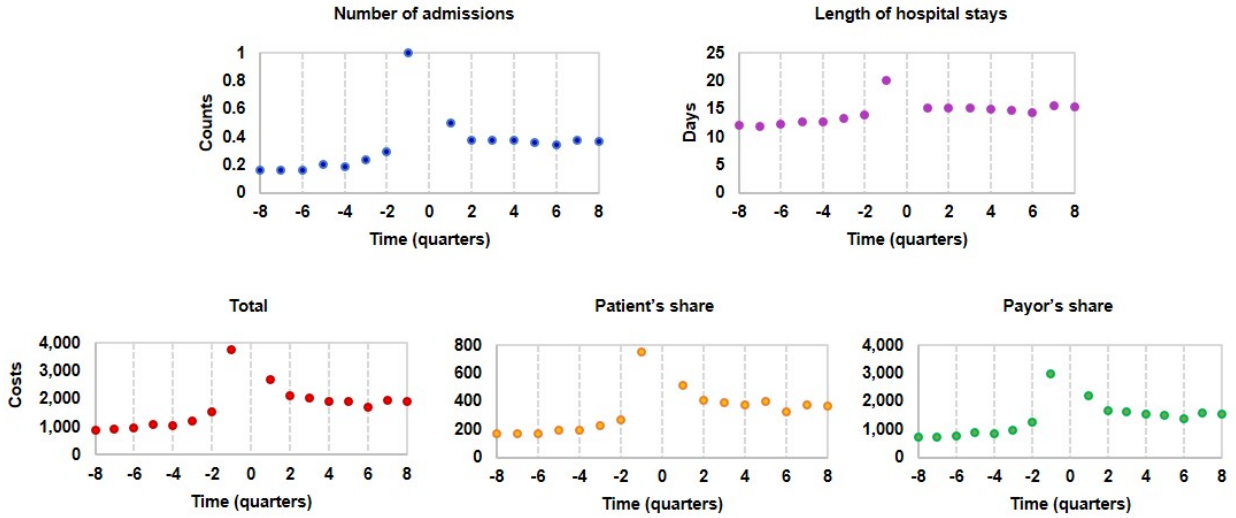

Clinical Implications: My study will help enable cardiovascular clinicians to realize that TAVI is an economically beneficial procedure for elderly patients with severe AS, as it prevents the natural rise of medical costs from aging and disease progression.