

Cost Utility Analysis of Pedicle Screws Compared with Spinous Process Fixation for Posterior Lumbar Instrumented Fusion For Single Level Degenerative Spondylolisthesis.

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Introduction

Lumbar decompression and instrumented posterior fusion is a widely accepted procedure for patients with symptomatic degenerative spondylolisthesis with stenosis. With the national concern over rising healthcare costs, in particular with the Medicare system, cost reduction is as important as achieving excellent surgical outcomes. No studies have evaluated the use of spinous process (SP) hardware fixation compared with pedicle screws (PS) for this condition.

Figure 1: Aspen Device



Methods

This was a prospective, non-randomized cohort study comparing SP or PS fixation for single level degenerative spondylolisthesis. 55 consecutive patients underwent a posterior fusion at a single center by a single surgeon with either spinous process fixation (Aspen device, n=44) or pedicle screw fixation (n=9). Clinical measures (ODI, SF36PH, SF36MH), hospital charges and insurance payments were prospectively collected and evaluated.

Results

Relative to the pedicle screw group, the spinous process group had similar hardware/biologics costs. (Table 1). The spinous process group had significantly lower anesthesia time and hospital stay resulting in significantly lower overall hospital charges (Figures 2-4). With similar insurance payment (Table 1), the hospital collected a higher percentage of their charges with the SP group (SP 79%; PS 61%).

Table 1: Cost Utility

Instrumentation	Age (years)	Operating Room Time (minutes)	Hospital Charges	Hardware Costs	Insurance Costs	Hospital Stay (hours)
Total	N: 55	38	51	51	49	50
	Mean: 71.15	134.61	\$31,502.98	\$11,590.45	\$23,595.43	34.54
	Std. Deviation: 7.47	\$2.21	\$8,487.23	\$1,130.97	\$4,157.61	24.04
Pedicle Screws	N: 9	9	8	8	9	9
	Mean: 68.00	212.22	\$40,662.44	\$12,242.67	\$24,716.33	65.78
	Std. Deviation: 8.89	28.63	\$9,451.89	\$2,499.04	\$5,806.30	40.32
	Median: 67.00	210.00	\$37,162.00	\$11,844.00	\$21,420.00	58.00
Aspen	N: 46	29	42	42	40	41
	Mean: 71.76	110.52	\$28,540.21	\$11,450.69	\$23,343.20	27.68
	Std. Deviation: 7.15	28.83	\$3,348.40	\$477.41	\$3,709.98	10.73
	Median: 72.50	120.00	\$28,524.00	\$11,518.50	\$22,734.00	26.00
P Value (Wilcoxon Rank Sum Test)	0.2411	<.0001	0.0001	0.4317	0.1978	0.0001

Figure 2

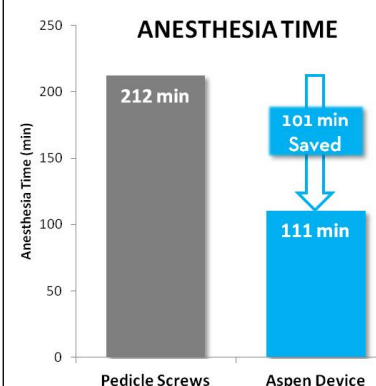


Figure 3

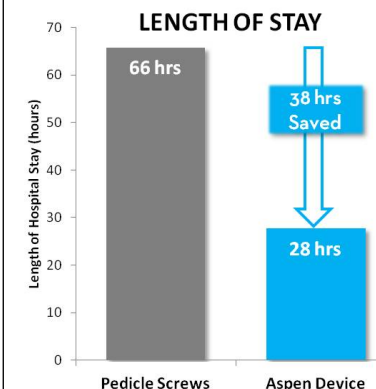
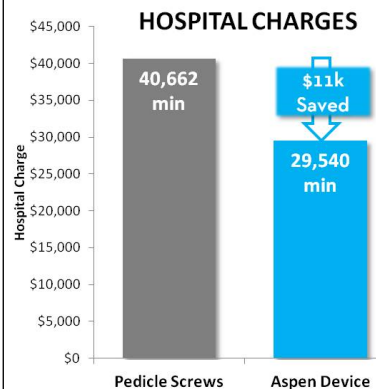


Figure 4



Conclusion

As compared to pedicle screws, the use of spinous process fixation for spondylolisthesis and stenosis reduces anesthesia time and length of stay, resulting in lower hospital costs.

Learning Objectives

After reviewing this poster you should be able to compare the cost utility of SP devices vs. PS.