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Lumbar total disc replacement delayed progression of radiographic adjacent-level degeneration

Zigler JE, et al. *Spine J.* 2018;doi:10.1097/BRS.0000000000002647.

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At 5-year follow-up, investigators found the rates of radiographic adjacent-level degeneration and clinical adjacent-level degeneration after lumbar total disc replacement were low and were similar to those reported in previous total disc replacement studies.



Jack E. Zigler

“Our study reinforced the scientific evidence showing that motion is protective of the adjacent level in the lumbar spine,” **Jack E. Zigler, MD**, told *Healio.com/Orthopedics*. “Our results were consistent in showing that radiographic adjacent-segment degeneration 5 years following arthroplasty is a fraction of that observed following fusion in randomized, matched cohorts of patients. [The] activL, with its improved maintenance of range of motion, leads to even more protection of the adjacent segment with even less radiographic deterioration after 5 years than older-designed implants.”

Zigler and colleagues performed a post-hoc analysis of 175 patients with single-level, symptomatic disc degeneration who underwent total disc replacement (TDR) and either received an activL implant (Aesculap Implant Systems) or a ProDisc-L implant (DePuy Synthes). Patients had preoperative and 5-year postoperative radiographs which were evaluated with the Kellgren-Lawrence scale. Disc height, endplate sclerosis, osteophytes and spondylolisthesis were assessed to evaluate degeneration at adjacent levels. Adjacent-level degeneration (ALD) outcomes were compared between TDR and fusion.

Results showed 90.3% of patients who underwent TDR who showed no evidence of ALD progression at the superior adjacent level at the 5-year follow-up. However, 9.7% had ALD progression. Investigators found 2.3% of patients

showed clinical ADL at 5 years, but none of these patients had the condition at baseline. After matching and taking baseline characteristics into consideration, investigators found TDR had a significantly lower risk of ALD progression compared with fusion.

“For each degree of range of motion gained at the TDR level, there was a consistent decrease in the percentage of patients with ALD,” the researchers wrote. – *by Monica Jaramillo*

Disclosure : The study was supported by funds from Aesculap Implant Systems LLC.



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