

Lumbar Spinal Disc Replacement in a Community Practice Setting

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Introduction

- Comparative studies for a lumbar TDR in a community setting outside of an IDE setting are few.

Purpose

- Compare a lumbar TDR for one level conditions to fusion in a community spine practice.
- Compare off label combination of disc replacement and spinal fusion as a “hybrid” construct for multilevel conditions.

Methods

- TDR (n=26) and single-level fusion (n=62) cohorts.
- TDR hybrids (n= 21) and 2-level A/P fusion (n=50) cohorts.
- Prospective outcomes, 2-4 year follow-up.
- Hospitalization (LOS, EBL, implant costs).
- Revisions, secondary operations.

Results

- Both TDR and spinal fusion groups had significantly improved outcomes at all follow-up periods for both single and multilevel cases.
- There was no significant difference in outcomes between single level and multilevel cases within both the fusion and TDR groups.
- Single level cases, the TDR group had significantly greater ODI improvement relative to the fusion group at all follow-up periods.
- Single level TDR had trend for greater VAS improvement at 1-2 yr and 2-4 yr follow-up periods.
- For multi-level cases, the improvement of hybrid was not significantly greater than for fusion at all follow-up periods.
- Implant costs were less for single level total disc replacement compared to spinal fusion but equivalent or greater for hybrid constructs compared to multilevel fusion constructs.
- Range of motion was maintained in the total disc replacement groups.
- Secondary surgeries were greater for the fusion groups (instrumentation removal and adjacent segment conditions).

Discussion

- Outcomes of current 1-level study similar to IDE studies and favor TDR.
- Current TDR (& hybrid reconstructions) outcomes equivalent to or trend for better than fusion for properly selected patients.
- TDR: Lower short-term reoperation rates and shorter return to work.

Lumbar	Single Level TDR (n=26)	Single Level ASF/PSF (n=62)
Age (mean ± SD)	36.0 ± 9.0	40.1 ± 11.4
Female (%)	58	77
Smokers (%)	53	42
Work Comp/Lit (%)	37	31
EBL (ml, mean ± SD)	89 ± 68	261 ± 214
Secondary Surgery (%)	4	53*
Return to work (median, months)	2.1	4.7

Lumbar	Hybrid TDR (n=21)	Two-Level ASF/PSF (n=50)
Age (mean ± SD)	44.8 ± 11.6	45.0 ± 11.6
Female (%)	25	68
Smokers (%)	42	50
Work Comp/Lit (%)	67	48
EBL (ml, mean ± SD)	246 ± 301	499 ± 296
Secondary Surgery (%)	6	78*
Return to work (median, months)	4.2	5.8

*Most were instrumentation removal

Outcomes:

