ProDisc®-C Total Disc Replacement - 7 Years Follow up

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Introduction: Cervical total disc replacement (TDR) for the treatment of cervical disc disease between C3-C7. Cervical TDR has potential benefits of providing immediate stability, reducing adjacent level disc degeneration and restoring/preserving range of motion between vertebral bodies. The purpose of this study was to evaluate the 7 year clinical results of ProDisc®-C TDR.

Material and methods: A prospective, controlled, consecutive case series of 288 patients who received TDR was conducted (total number of implants 458). Patients were assessed pre- and post-operatively at up to 84 months using the Neck Disability Index (NDI), Visual Analog Scale (VAS) Pain Intensity and SF-36.

Results: Of the 288 patients (136 male mean age 47.7 yrs. range 30 - 68 / 152 females mean age 48 yrs. range 18 - 69). 146 underwent single level, 142 underwent multi-level surgery. The most frequent single level treated was C5-C6 (49.3%) followed by C6/C7 (31.5%), C4/C5 (15.7%) and C3/C4 (3.5%). Of multi-level cases, two levels were most common (82.3%), with C4-C6 and C5-C7 being equally as frequent as in three level cases (10.6%). 4 levels are 6.3% and 5 levels are 0.7%. The scores decreased at 3 month postoperative and were maintained throughout the follow up.

VAS scores decreased from a mean score of 7.1 ± 6.7 baseline to 3.8 ± 2.4 at 3 months; 4.3 ± 2.5 at 6 months; 4.2 ± 2.7 at 1 yr ; 4.0 ± 2.9 at 2 yrs.; 3.8 ± 2.7 at 3 yrs; 4.2 ± 2.9 at 4yrs; 4.5 ± 2.9 at 5 yrs; 4.4 ± 2.3 at 6 yrs and 3.9 ± 3.4 at 7 years. NDI scores (in %) were reduced from 49.7 ± 18.4 baseline to 32.6 ± 18.0 at 3 months, 33.6 ± 19.4 at 6 months; 33.2 ± 21.7 at 1 yr; 32.8 ± 20.3 at 2yrs; 32.3 ± 20.1 at 3 yrs. 36.7 ± 19.2 at 4 yrs; 36.7 ± 22.2 at 5 yrs; 31.0 ± 21.6 at 6 yrs and 31.1 ± 24.1 at 7 yrs. The SF 36 physical / mental component and total was baseline P 35.4 ± 9.4 M 27.4 ± 12.2 T 76.0 ± 16.5 and improved at 3 month P 40.2 ± 8.9 M 29.0 ± 9.4 T 85.1 ± 16.6; 6 month P 40.7 ± 9.9 M 28.8 ± 9.4 T 85.8 ± 18.1; 1 yr P 41.6 ± 11.2 M 29.2 ± 8.8 T 87.6 ± 18.3; 2 yrs P 41.7 ± 11.7 M 28.1 ± 8.8 T 86.2 ± 18.8; 3 yrs P 40.1 ± 10.9 M 29.4 ± 8.9 T 84.3 ± 21.8; 4 yrs P 39.2 ± 10.6 M 28.8 ± 7.3 T 84.3 ± 19.9; 5 yrs P 39.3 ± 9.3 M 29.0 ± 10.3 T 83.9 ± 19.6; 6 yrs P 40.1 ± 10.8 M 30.3 ± 9.0 T 87.1 ± 19.0 and 7 yrs P 39.7 ± 15.2 M 28.7 ± 8.5 T 83.9 ± 24.1.

Conclusions: Cervical TDR using ProDisc®-C demonstrates significant clinical improvement and provides long-term patient satisfaction. This data suggests that patients who receive multi-level TDR surgery using ProDisc®-C experience similar clinical outcomes to single level patients.