Clinical Outcomes after Cervical Disc Arthroplasty for Workers' Compensation Patients
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Introduction: The evidence-based literature offers little support for surgical treatment of spine patients with workers' compensation claims. Low back pain patients treated surgically in the SPORT study, for example, were generally found to have significantly greater improvement after two years than nonoperative patients, while claimants saw no added benefit with surgery. Cervical disc arthroplasty (CDA) in workers' compensation patients, however, has been reported to provide significant improvement in pain and disability outcomes, and significantly earlier return to work than anterior cervical discectomy and fusion in recent IDE studies. In this study with up to 3-year follow up (ongoing) we compare clinical outcomes of CDA patients at a single site with a large workers' compensation population.

Methods: This is a review of prospectively collected data for 223 consecutive patients treated with CDA for symptomatic cervical degenerative disease unresponsive to nonoperative measures. A total of 157 workers' compensation claimants (WC) and 66 patients without claims (NC) underwent CDA at one to four levels, with over 90% in each group treated at 1 or 2 levels. Patient demographics, intraoperative measures including operative time and blood loss, postoperative outcomes including Neck Disability Index (NDI), neck and arm pain numerical questionnaires, and work status were analyzed preoperatively and at 1.5, 3, 6, 12, 24 and 36 months.

Results: Demographics were similar between groups; in total 58% were male, with an overall average age of 45.3 years (range 25-71) and average weight of 195.1 pounds. More WC were smokers (p=0.04). Preoperative disability and pain scores were statistically equivalent. Mean operative time was 82.6 minutes (avg. 58.6 per treated level), and estimated mean blood loss was 49.3 cc, with no significant differences between groups. Mean improvements vs. baseline in NDI, neck and arm pain were all significant for both WC and NC patients at all intervals. At 12, 24, and 36 months, NDI mean improvements for WC/NC were: 29.5/34.9, 29.7/32.9, and 42.1/34.9 points, with no significant differences between groups. Substantial neck and arm pain score improvement was similarly achieved in both groups. Medical release to work had been given to over 90% of patients in both groups who were beyond their 6-week follow up.

Conclusions: In this large cohort of single and multilevel CDA patients at a single site, mean disability and pain score improvements up to three years postoperatively were significant and indicative of substantial clinical benefit from surgery. There was no significant difference for patients in the WC and NC groups. Appropriately selected worker's compensation claimants with cervical degenerative disease at one or more levels may be effectively treated and released to return to work with CDA.