Health-related Quality of Life: How Does Symptomatic Disc Degeneration and its Treatment with Total Disc Replacement Compare to Other Medical Conditions?

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Introduction: Health-related quality of life instruments, such as the Short Form-36 (SF-36), are used to assess patients' physical and mental health in a variety of illnesses. The purpose of this study was to evaluate the SF-36 scores of patients with symptomatic functionally disabling lumbar degenerative disc disease (DDD) treated with total disc replacement (TDR) in the context of multiple other disease conditions and also to investigate the change in scores after treatment.

Methods: The SF-36 scores for the DDD group came from the single-level randomized ProDisc-L Food and Drug Administration (FDA) regulated trial. All patients were diagnosed with DDD based on clinical symptoms, MRI, and in many patients confirmatory discography, and all had failed at least 6 months of non-operative treatment. Data in the current study includes the 158 patients randomized to total disc replacement (TDR) and for whom 12-month follow-up was available. Based on a literature search, articles for other commonly accepted conditions were identified which reported SF-36 scores at baseline and at follow-up. The 12-month follow-up was selected due to the availability of data for this follow-up in multiple studies. Pre- and 12-month post-operative data were collected from the literature for hip replacement, knee replacement, chronic obstructive pulmonary disease (COPD), cancer, and heart disease. To determine the impact of DDD on patients compared to other illnesses the baseline Physical Component Summary (PCS) was used. Higher PCS scores indicate better health. Outcome at 12-month follow-up was also compared across the multiple diagnostic groups.

Results: At baseline, the DDD patients' physical health mean score was similar to those in the following groups: hip replacement, COPD, heart disease, and knee replacement (Figure 1). Scores for DDD patients were slightly worse than heart disease patients and worse than for cancer patients. After TDR, the PCS scores improved significantly (p< 0.05). The post-TDR score improved to a level similar or better than post-treatment scores for COPD, knee replacement, and heart disease. Hip replacement had somewhat greater post-treatment scores.

![Figure 1. Comparison of DDD to other diagnoses.](image)

Conclusions: In this TDR patient population, lumbar DDD was associated with levels of pre-operative physical debilitation similar to other medical conditions generally considered to be significant health problems. Treatment with TDR yielded after-treatment results that were comparable to most of these...
other conditions. The results of this study support that functionally-disabling lumbar DDD is a significant health problem and is as debilitating as several other commonly-accepted disease states. Through careful patient evaluation and treatment, their physical condition can be improved in a manner similar to other significant health problems.