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Clinical Study

Sex life and sexual function in men and women before and after total disc replacement compared with posterior lumbar fusion

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Abstract

BACKGROUND CONTEXT: Sex life and sexual function may be affected by low back pain (LBP). Sexual dysfunction after anterior lumbar fusion is reported in both men and women, but focus is mainly on impaired male biological function (retrograde ejaculation) as this may cause infertility. This has led to concern as to whether anterior surgery should be employed in men, at least in younger age groups.
PURPOSE: To investigate how chronic low back pain (CLBP) of assumed discogenic origin affects sex life and sexual function in patients considered for surgical treatment, whether this is affected by surgical treatment (total disc replacement [TDR] or posterolateral fusion [PLF]/posterior lumbar interbody fusion [PLIF]), and if so, are there differences between the surgical procedures undertaken.
STUDY DESIGN: A randomized controlled trial comparing TDR and instrumented lumbar spine fusion, performed either as a PLF or PLIF.
PATIENT SAMPLE: One hundred fifty-two patients were included in this randomized controlled trial to compare the effect on CLBP of either TDR via an anterior retroperitoneal approach or instrumented posterior lumbar fusion, PLF or PLIF.
OUTCOME MEASURES: Global assessment of back pain, back pain (visual analog scale [VAS] 0-100), function (Oswestry Disability Index [ODI] 0–100), quality of life (EQ5D [EuroQol] 0–1), and answers on specific sexual function.
METHODS: Outcome was assessed using data from the Swedish Spine Register (SweSpine). In ODI, one question, ODI 8, reflects the impact of back pain on sex life. This question was analyzed separately. Patients also answered a gender-specific questionnaire preoperatively and at the 2-year follow-up to determine any sexual dysfunction regarding erection, orgasm, and ejaculation. Follow-up was at 1 and 2 years.
RESULTS: Before surgery, 34% reported that their sex life caused some extra LBP, and an additional 30% that their sex life was severely restricted by LBP. After surgery, sex life improved in both groups, with a strong correlation to a reduction of LBP. The gender-specific questionnaire used to measure sexual function after 2 years revealed no negative effect of TDR or Fusion in men regarding erection or retrograde ejaculation. However, 26% of all men in the Fusion group, compared with 3% in the TDR group, reported postoperative deterioration in the ability to achieve orgasm, despite a reduction of LBP.
CONCLUSIONS: Impairment of sex life appears to be related to CLBP. An improvement in sex life after TDR or lumbar fusion was positively correlated to a reduction in LBP. Total disc replacement in this study, performed through an anterior retroperitoneal approach, was not associated with greater sexual dysfunction compared with instrumented lumbar fusion performed either as a PLF or as a PLIF. Sexual function, expressed as orgasm, deteriorated in men in the Fusion group postoperatively, in spite of this group reporting less LBP after 2 years.

Keywords: Sex life; Sexual dysfunction; Retrograde ejaculation; Total disc replacement; Lumbar fusion; Low back pain

FDA device/drug status: not applicable.
Author disclosures: none.

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EVIDENCE & METHODS

Context
Low back pain and its surgical treatment might impact sexual function. There is limited data on this topic.

Contribution
Using data gathered from an RCT, assessing total disc replacement versus posterior fusion, the authors compared sex life and sexual function before and after surgery in both groups. Preoperatively, there were no differences between groups. Postoperatively, in most respects, both groups noted similar functional improvements correlating with decreased low back pain. The disc replacement group reported a better ability to achieve orgasm.

Implications
An important contribution of the study is that specific instruments might be required to adequately assess the impact of LBP and interventions on sexual function. The findings might be useful for patient education. However, the inability to generalize and reproduce the authors' findings might be important limitations. The reader should consider that some factors, such as retrograde ejaculation following an anterior approach, are clearly technique dependent.

—The Editors

Introduction

Total disc replacement (TDR) is seen by many as an alternative to fusion in patients with chronic low back pain (CLBP). Although fusion today should be regarded as a gold standard, the frequency of patients treated with TDR is increasing [1]. Today, several TDR implants are Food and Drug Administration approved [2,3] or are in the process of being approved. Total disc replacement aims at pain relief through removal of an assumed painful disc while preserving/restoring spinal motion. Fusion aims at pain relief through ankylosis of the assumed painful motion segment, mainly the disc and the facet joints.

Sex life in general, and also specific sexual functions expressed as the ability to achieve erection, normal ejaculation, and orgasm, may be part of the patient's psychosocial situation, but its relation to CLBP in the patient group considered for surgery is not fully explored [4–7]. Sexual dysfunction has also been reported after anterior lumbar interbody fusion. This has been assumed to be related to damage to the hypogastric nervous plexus and to mainly affect the male biological function. Retrograde ejaculation after anterior spinal surgery, with consequent infertility, has a reported incidence of 0% to 28% [8–13]. This complication is suggested to be technique dependent [14–16] and possibly more frequent when a transperitoneal/laparoscopic approach is used compared with a retroperitoneal dissection. We conducted a prospective randomized trial including 152 surgical candidates suffering from CLBP and compared the clinical effects of TDR with instrumented posterior fusion [17].

The aim of this substudy was fourfold:

1. To examine how CLBP of assumed discogenic origin in patients considered for surgery related to sex life in general and to specific sexual functions: erection, orgasm, and ejaculation.
2. To evaluate whether sex life and sexual function improved when low back pain (LBP) was relieved.
3. To compare pain-related effects on sex life after treatment with either of two surgical techniques, TDR and instrumented PLF/posterior lumbar interbody fusion (PLIF).
4. To evaluate whether there are gender-specific adverse effects on specific sexual functions, such as problems with erection, orgasm, or retrograde ejaculation, associated with either of the two surgical procedures.

Patients and methods

We conducted a single-center (Stockholm Spine Center, Stockholm, Sweden), randomized controlled trial comparing TDR and instrumented lumbar fusion. The Ethics Committee of the Karolinska Institute, Stockholm, approved the study in 2003 (03-268). The patients were diagnosed as having symptomatic degenerative disc disease in one or two motion segments between L3 and S1, with LBP as a predominant symptom, although concomitant leg pain was not a contraindication. For inclusion, back pain should be considered mechanical and discogenic in origin with interspinous tenderness on examination, disc narrowing on radiographs, and signs of disc degeneration on magnetic resonance imaging. Low-grade facet joint arthritis at the index level, as well as low-grade degeneration at other levels, was no contraindication. The inclusion and exclusion criteria are summarized in Table 1.

The selection of patients and the choice of treatment options in this study were common to many spine surgeons, and a high proportion of the patients referred to our clinic during the inclusion period were included. To avoid any crossover, only patients who could accept either of the treatments were included.

After inclusion, patients were randomized between fusion and TDR at a 1:1 ratio using a sealed envelope technique. Total disc replacement patients were further randomized to one of three devices used in Sweden during the study period: Charité (Depuy Spine, Raynham, MA, USA), ProDisc (Synhes Spine, West Chester, PA, USA), or Maverick (Medtronic, Memphis, TE, USA). The randomization process was stratified for number of levels,