

Long-term outcome of lumbar disc herniation surgery Studies on different influencing factors

AKADEMISK AVHANDLING

Som för avläggande av Medicine Doktorsexamen vid Göteborgs Universitet kommer offentligen att försvaras i Hjärtats aula, Sahlgrenska Universitetssjukhuset/Sahlgrenska
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av

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Avhandlingen baseras på följande delarbeten:

- I. **Clinical factors of importance for outcome after lumbar disc herniation surgery- Long-term follow-up.**
Rönnerberg K, Lind B, Halldin K, Zoëga B, Gellerstedt M, Brisby H
Submitted
- II. **Patients' satisfaction with provided care/information and expectations on clinical outcome after lumbar disc herniation surgery.**
Rönnerberg K, Lind B, Halldin K, Zoëga B, Gellerstedt M, Brisby H
Spine (Philh Pa 1976). 2007 Jan 15;32(2):256-61
- III. **Peridural scar and its relation to clinical outcome: a randomized study on surgically treated lumbar disc herniation patients.**
Rönnerberg K, Lind B, Gadeholt-Göthlin G, Halldin K, Zoëga B, Gellerstedt M, Brisby H
Eur Spine J. 2008 Dec; 17(12):1714-20. Epub 2008 Oct 23.
- IV. **Health-related quality of life in surgically treated lumbar disc herniation patients- Long-term follow-up.**
Rönnerberg K, Lind B, Halldin K, Zoëga B, Brisby H
Submitted

Long-term outcome of lumbar disc herniation surgery

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Abstract

Background: A majority of patients suffering from sciatica caused by lumbar disc herniation experience a positive natural history and respond well to non-surgical treatment. Patients who fail conservative treatment and are treated surgically have been reported to get satisfactory result in about 70-90% in short-term (1-2 year) follow-up. There are few long-term follow-up studies in this patient group. The surgical success of treatment can be evaluated by different methods. Outcome based on patients' satisfaction with treatment and health related quality of life after surgery has gained increasing interest in later years. Factors as age, sex, smoking, leg pain duration, working status, type/level of disc herniation and psychosocial factors have been demonstrated to be of importance for short-term results after lumbar disc herniation surgery. The effect of epidural scar on the clinical outcome is still a controversy.

Aims: The aims of the present studies were to investigate the following factors in patients undergoing lumbar disc herniation surgery in a prospective study design:

- 1) Possible predictive factors for short- and long-term result (2- and 5-10 years).
- 2) Patients satisfaction with care/preoperative information, if expectations on surgical results and ability to return to work are related to baseline characteristics and/or can predict self-reported outcome.
- 3) Scar development 6 and 24 months postoperatively on MRI, relationship between postoperative peridural scar formation and clinical outcome, and the possible effect of ADCON-L (a biosorbable carbohydrate polymer gel) on scar size and patients' outcome.
- 4) Influence of preoperative factors on HRQoL and the postoperative change of HRQoL (EQ-5D) over time.

Patients and methods: One-hundred-eighty-three patients undergoing lumbar disc herniation surgery were recruited for the studies. Questionnaires to collect baseline data, experienced preoperative information and care, expected and present work ability, expectations on improvement of physical functions/symptoms (leg- and back pain, sensibility and muscle function) and HRQoL were filled in preoperatively. The ZDS and ODI were used to measure preoperative depression and disability. One-hundred-eight patients underwent MRI at 6 and 24 month postoperatively and an independent radiologist graded the size, location and development of the scar, by using a previously described scoring system.

Outcomes were evaluated at 2 and 5-10 (7.3) years after surgery. At both follow-ups a self-reported (subjective) outcome score was used. In addition an objective outcome score, assessed by an independent neurologist was used at the 2-year follow-up.

Results and conclusions: In about 70 % of the patients excellent or good overall result was reported at both the short and long-term follow-up, using objective as well as subjective outcome measurements. Long preoperative sick leave predicted lower degree of satisfaction with treatment at the 2-year follow-up. At the long-term follow-up long duration of symptoms as well as time of sick leave preoperatively were identified as negative predictors. A majority of patients undergoing lumbar disc herniation surgery were satisfied with pre- and postoperative care, but to a lesser extent satisfied with given information. Furthermore, patients with preoperative positive expectations on work return and lower (realistic) expectations on pain and physical recovery had a greater chance to experience satisfaction with the result of the surgical treatment. No significant association between the size or localization of postoperative peridural scar formation and clinical outcome could be detected. Furthermore no effects on scar formation using ADCON-L were found.

Key words: Lumbar disc herniation surgery, clinical outcome, long-term follow-up, scar formation, expectation, satisfaction, predictive factors, health related quality of life (HRQoL)

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