

Clinical Study

An observational study on the outcome after surgery for lumbar disc herniation in adolescents compared with adults based on the Swedish Spine Register

Tobias Lagerbäck^{a,b}, Peter Elkan, MD^{a,c,d}, Hans Möller, MD, PhD^{a,b}, Anna Grauers, MD^{a,b,e},
Elias Diarbakerli, PT^{a,b}, Paul Gerdhem, MD, PhD^{a,b,*}

^aDepartment of Clinical Sciences, Intervention and Technology (CLINTEC), Karolinska Institutet, Stockholm, Sweden

^bDepartment of Orthopaedics, Karolinska University Hospital, Stockholm, Sweden

^cDepartment of Clinical Sciences, Södersjukhuset, Karolinska Institutet, SE 118 83 Stockholm, Sweden

^dDepartment of Orthopaedics, Södersjukhuset, SE 118 83 Stockholm, Sweden

^eDepartment of Orthopaedics, Sundsvall and Härnösand County Hospital, SE 851 86 Sundsvall, Sweden

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Abstract

BACKGROUND CONTEXT: Disc-related sciatica has a prevalence of about 2% in adults, but is rare in adolescents. If conservative treatment is unsuccessful, surgery is an option.

PURPOSE: The aim of this study was to compare the outcomes of surgery for lumbar disc herniation in adolescents with adults in the Swedish Spine Register.

STUDY DESIGN/SETTING: This is a prospective observational study: National Quality Register.

PATIENT SAMPLE: This study included 151 patients, 18 years or younger, 4,386 patients, 19–39 years, and 6,078 patients, 40 years or older, followed for 1–2 years after surgery.

OUTCOME MEASURES: The primary outcomes were patient satisfaction and global assessment of leg and back pain. Secondary outcomes were Visual Analog Scale (VAS) leg pain, VAS back pain, Oswestry disability index (ODI), and EuroQol-5 dimensions (EQ-5D).

METHODS: Statistical analyses were performed with the Welch *F* test, the chi-square test, and the Wilcoxon signed-rank test.

RESULTS: At follow-up, 86% of the adolescents were satisfied compared with 78% in the younger adults and 76% in the older adults group ($p < .001$). According to the global assessment, significantly decreased leg pain was experienced by 87% of the adolescents, 78% of the younger adults, and 71% of the older adults ($p < .001$). Corresponding figures for back pain were 88%, 73%, and 70%, respectively ($p < .001$). All groups experienced significant postoperative improvement of VAS leg pain, VAS back pain, ODI, and EQ-5D (all $p < .001$).

CONCLUSIONS: The adolescent age group was more satisfied with the treatment than the adult groups. There was a significant improvement in all age groups after surgery. © 2015 Elsevier Inc. All rights reserved.

Keywords:

Adolescents; Discectomy; Lumbar disc hernia; Outcome; Surgery

FDA device/drug status: Not applicable.

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* Corresponding author. Department of Clinical Sciences, Intervention and Technology (CLINTEC), Karolinska Institutet, K54, Huddinge, SE 141 86 Stockholm, Sweden. Tel.: (46) 8-585-80000

E-mail address: paul.gerdhem@karolinska.se (P. Gerdhem)

EVIDENCE & METHODS

Context

The authors maintain there is insufficient evidence regarding outcomes following surgical intervention for lumbar disc herniation among adolescents. The authors present results from an observational study performed using the National Quality Register of Sweden.

Contribution

Adolescents experienced statistically superior improvements in back and leg symptoms as compared to older individuals. Adolescents also reported statistically greater levels of satisfaction following surgery.

Implications

While the data may have been collected prospectively, this study was performed using a national registry and likely suffers from many of the drawbacks associated with database research. No conservatively treated adolescent cohort is available for comparison and there is likely a component of selection, as well as possibly indication, bias that could confound the results. The authors' statistical testing is also unable to address the potential for confounding and the sample of adolescent patients is relatively small as compared to the older age groups used as controls. As a result, the evidence presented here should be viewed as no higher than Level III.

—The Editors

Introduction

Disc-related sciatica has a prevalence of about 2% in adults, but is rare in adolescents [1]. Pain relief occurs within 8 weeks of conservative, nonsurgical treatment in 80% of the cases [2]. When nonsurgical treatment fails, surgery gives relief from symptoms [3,4]. The incidence of surgery varies worldwide [5]. In Sweden, approximately 20 per 100,000 individuals per year undergo surgery for a herniated lumbar disc at a median age of 40 years [6,7].

There have been only a few studies on lumbar disc herniation in children and adolescents, and all are retrospective [8–16]. The indications for surgical treatment of lumbar disc herniation in adolescents are generally no improvement of severe pain with conservative treatment, disabling pain that affects daily activities, cauda equina syndrome, or progressive neurologic deficits [17]. This is similar to the indications for surgery in adults. The time from onset of symptoms to diagnosis and surgical intervention is longer among adolescents than among adults [10,18]. This time could possibly be shortened if clinicians felt more confident in identifying and surgically intervening in cases of symptomatic lumbar disc herniation in adolescents.

We hypothesized that adolescents have a similar outcome of surgery as adults. In this study, based on prospectively collected data from the Swedish Spine (SweSpine) Register, we compare the short-term outcomes after surgery for lumbar disc herniation in adolescents with adults.

Methods

Participants

The SweSpine Register has included individuals treated with surgery for lumbar disc hernias since 1993 [6], with the aim of studying outcomes after spine surgery. In Sweden, lumbar disc hernia surgery is performed by orthopedic spine surgeons, who treat patients of all ages, and there are, therefore, no pediatric spine surgeons. During the last decade, the number of departments participating in the registry has varied between 35 and 39 of the 42 to 45 departments providing spinal surgery services in Sweden. All departments and patients participate voluntarily. At the time of admission, the surgeon records data consisting of information on diagnosis and type of surgery. Any reoperations on the same spinal level were registered by the surgeon performing the reoperation, and data were available for a follow-up time up of 2 years for all cases.

Patients operated on for lumbar disc herniation through March 2011 were included in this study. Exclusion criteria included other diagnoses than lumbar disc hernia, missing age or date of surgery, previous spine surgery, surgery other than discectomy only, or missing outcome data. If 2-year data were not available, 1-year data were used. From a perspective of results, 1- and 2-year data are similar [6]. Two-year data were used in 8,290 patients, and 1-year data were used in 2,325 patients, corresponding to a mean follow-up of 1.8 years. The 10,615 total patients were divided into

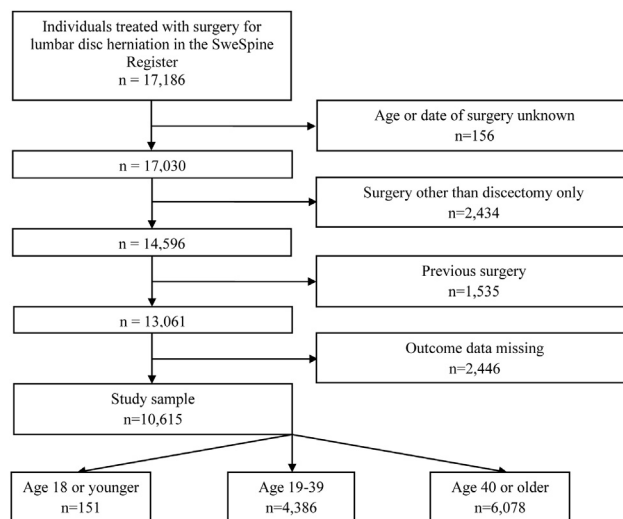


Fig. 1. Flowchart of the patients in the study. A total of 10,615 patients were divided into three groups: adolescents (18 years or younger), younger adults (19–39 years), and older adults (40 years and older).

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