



Clinical Study

Surgical outcomes in the elderly with degenerative spondylolisthesis, comparative study between patients over 80 years of age and under 80 years—a gender-, diagnosis-, and surgical method-matched two-cohort analyses

Jen-Chung Liao, MD*, Wen-Jer Chen, MD

Department of Orthopedics Surgery, Bone and Joint Research Center, Chang Gung Memorial Hospital, Chang Gung University, No. 5, Fu-Shin St, Kweishian, Taoyuan, 333 Taiwan

Received 6 February 2017; revised 8 July 2017; accepted 29 August 2017

Abstract

BACKGROUND: In Taiwan, the current life expectancy of an 80-year-old man is 88.4 years and that of an 80-year-old woman is 89.8 years. Surgical candidates older than 80 years usually ask surgeons whether it would be safe for them to undergo surgery.

PURPOSE: The objectives of this study were to report the surgical outcomes of patients with degenerative spondylolisthesis who were older than 80 years and underwent instrumented surgeries and to compare these data with the outcomes of patients aged 65–79 years.

STUDY DESIGN/SETTING: This is a retrospective study.

PATIENT SAMPLE: The study included 76 patients.

OUTCOME MEASURES: The preoperative medical condition was reviewed using the weighted Charlson Comorbidity Index (CCI) and the American Society of Anesthesiologists (ASA) physical status classification. Clinical outcomes were evaluated according to the Oswestry Disability Index (ODI) and the visual analog scale (VAS) for leg and back pain. Plain radiographs were used to assess the fusion status, implant-related complications, and the prevalence of osteoporotic compression fractures (OVFx).

MATERIALS AND METHODS: The study comprised patients older than 80 years, and the control group comprised patients aged 65–79 years. The two cohorts were matched for gender, main diagnosis, and surgical method.

RESULTS: In total, 76 patients were included in the study. The study group had 38 patients with a mean age of 82.4 years (80–93 years); the control group also had 38 patients with a mean age of 70.8 years (65–79 years). The study group had a significantly higher ASA classification (2.94 vs. 2.76, $p=.040$) and CCI score (1.84 vs. 1.13, $p=.012$). The study group had a higher prevalence of preoperative OVFx (10.5% vs. 2.6%, $p=.116$) and incidence of new-onset OVFx (13.2% vs. 2.6%, $p=.089$). The study group had longer operative times (204.6 vs. 179.1 minutes, $p=.052$) with more blood loss (606.5 vs. 525.8 mL, $p=.512$), but this finding was not statistically significant. The mean ODI and VAS scores were similar between the two groups. The bone union rate was superior in the control group (81.6% vs. 89.5%, $p=.328$).

CONCLUSIONS: Patients older than 80 years have a higher osteoporotic status and comorbidities, which may lead to longer operative times and greater blood loss, with poorer radiographic outcomes. However, the clinical results were not affected. With appropriate patient selection, the age of >80 years is not a negative predictive factor for instrumented surgery for degenerative spondylolisthesis. © 2017 Elsevier Inc. All rights reserved.

Keywords: Complications; Degenerative lumbar spondylolisthesis; Elderly; Instrumented fusion; Osteoporosis compression fracture; Outcomes

FDA device/drug status: Not applicable.

Author disclosures: *JCL*: Nothing to disclose. *WJC*: Nothing to disclose.

The disclosure key can be found on the Table of Contents and at www.TheSpineJournalOnline.com.

* Corresponding author. Department of Orthopedic Surgery, Chang Gung Memorial Hospital, Chang Gung University, No. 5, Fu-Shin St, Kweishian, Taoyuan 333, Taiwan. Tel.: 886-3-3281200, ext 2423; fax: 886-3-3278113. E-mail address: jcl1265@adm.cgmh.org.tw (J.-C. Liao)

Introduction

With advances in health care and improvements in public health, an increasing number of people can continue to lead active lives well into their ninth decade. In Taiwan, the average life span reaches 79.1 years (men, 76.0 years; women, 82.5 years), and one half of all men and women can live for >79 and >85 years, respectively, according to the 2011 data of the Ministry of the Interior in Taiwan [1]. Furthermore, the life expectancy of the global population is estimated to rise to 86.6 years among women and 81.1 years among men in 2050 [2]. Geriatric populations, especially those older than 80 years, usually have an osteoporotic spine with many comorbidities and patients may ask the surgeon whether it is safe for them to undergo surgery.

Decompression and instrumented fusion have become popular surgical methods for patients with degenerative spondylolisthesis since two decades ago [3]. Previous investigations have demonstrated that patients aged ≥ 65 years can expect less back and leg pain and a substantial improvement in their health-related quality of life after surgical decompression and arthrodesis for degenerative spondylolisthesis [4,5]. However, some studies have also advised that osteoporosis-related complications, such as pseudarthrosis and screw loosening, should be considered in patients older than 65 years [6,7]. To date, data regarding the outcomes of surgery for degenerative spondylolisthesis in patients older than 80 years are scant. In the current study, we retrospectively reviewed the clinical and radiographic results of patients with degenerative lumbar spondylolisthesis who underwent posterior decompression and instrumented fusion, and we compared these data with those of controls aged 65–79 years who were matched for gender, main diagnosis, and surgical method. The present study was conducted to determine whether age ≥ 80 years is a risk factor for increased surgical complications and reduced successful clinical results, as well as to provide guidance to surgeons and patients older than 80 years who are considering surgical treatment for their degenerative lumbar spondylolisthesis.

Materials and methods

After obtaining the approval from the institutional review board, we retrospectively reviewed patients with degenerative lumbar spondylolisthesis and spinal stenosis who underwent surgery between January 2010 and December 2012 at our department. The inclusion criteria were the age of ≥ 65 years, decompression with instrumented lumbar arthrodesis, and at least 2 years of follow-up. The study and control groups comprised patients aged ≥ 80 and 65–79 years, respectively. A total of 46 patients were included in the study group initially. During the same study period, 765 patients with degenerative spondylolisthesis who were aged 65–79 years underwent surgeries at our department. We selected patients in the study group matched by gender, main diagnosis, and surgical method. If there was more than one match for a patient in the study group, we performed a random computer-

assisted selection to choose a single patient for the control group. The study and control groups were matched in terms of patient number, gender, main indication for surgery, and surgical method. In the present study, all patients of both groups underwent conventional open surgeries. In brief, the patient was placed in the prone position on a four-poster bed, and a standard posterior midline approach was used to explore the lumbar spine; laminectomy was then performed, followed by instrumentation and posterolateral fusion with laminectomy bone chips.

The demographic data of all the study participants, including age, gender, body mass index, lower limb neurologic status, fused segments, operative time, estimated blood loss, length of hospital stay, perioperative complications, and postoperative complications, were collected from their medical records. The preoperative medical condition of these patients was reviewed using the weighted Charlson Comorbidity Index (CCI) [8] and the American Society of Anesthesiologists (ASA) physical status classification [9]. Clinical outcomes were evaluated using the visual analog scale (VAS) for leg and back pain [10] and the Oswestry Disability Index (ODI) [11]. At our department, all patients planning to undergo spinal surgery filled out preoperative ODI, VAS for the leg, and VAS for the back questionnaires during admission; the final ODI and VAS questionnaires were completed at the outpatient department. We also used the percentage of ODI improvement as an index of clinical outcomes. To determine the differences in ODI scores, the final ODI scores were subtracted from the preoperative ODI scores. The percentage of ODI improvement was defined as the ODI difference or the preoperative ODI.

Preoperative plain radiographs (lateral, anteroposterior, and flexion-extension) were used to assess the percentage of spondylolisthesis and the number of osteoporotic compression fractures (OVFx); postoperative plain radiographs were used to evaluate the fusion status, the number of new OVFx, and implant-related complications. Solid fusion was defined as visible fusion: a continuing bridging fusion mass at the bilateral transverse processes and no motion during flexion-extension on stress radiographs. Probable fusion was defined as an unclear bony trabecular continuity with no radiolucent interruption or motion on stress radiographs. Pseudarthrosis was defined as a radiolucent interruption of the fusion mass. Solid fusion indicated a successful fusion; probable fusion and pseudarthrosis implied non-fusion. We also focused on the incidence of any revision surgeries related to implant or adjacent segment degeneration.

Statistical analysis

Data were analyzed using the SPSS statistical software package (version 18.0; SPSS, Chicago, IL, USA). Continuous variables are presented as means \pm standard deviation. Continuous variables were compared between the study and the control groups through independent *t* tests. Categorical variables were compared between the study and the control

Download English Version:

<https://daneshyari.com/en/article/8804426>

Download Persian Version:

<https://daneshyari.com/article/8804426>

[Daneshyari.com](https://daneshyari.com)