Quality of life after lumbar spinal surgery.

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Abstract
Lumbar spinal stenosis (LSS) is a common disease for spinal surgeries among elderly adults. However, the health-related quality of life (HRQoL) after LSS has not been thoroughly investigated. In the present study, we evaluated the HRQoL after surgery in 127 patients with LSS in a Chinese population. The Medical Outcome Short Form 36 (SF-36) was used to evaluate the HRQoL before surgery and one year after the treatment. We observed improvements in all 8 domains of the HRQoL one year after discharge, though only those in two mental health domains and three physical health domains. Nevertheless, comparing with a healthy reference group, the HRQoL among these patients remained poorer in all domains. Our study suggests that surgical treatment may improve HRQoL in patients with LSS. This study also implies that the HRQoL assessment is a useful tool to assess the outcomes in patients with LSS after surgeries.

Keywords: Lumbar spinal stenosis, HRQoL, Quality of life, Prognosis, Surgery.
up to improve the completeness of follow-up. Only five of them did not participate in the second interview because of changes of contact information and lost to follow-up. We performed this study after being approved by the ethics committees of the university and the hospital. In addition, we obtained written informed consents from all participants before enrollments.

We compared the measurements of HRQoL with the non-parameter Wilcoxon’s rank sum tests. We also calculated odds ratios (ORs) associated with a set of factors potentially influencing the HRQoL scores one year after surgery, together with the corresponding 95% confidence intervals (CIs), in non-conditional logistic regressions. Patients were dichotomized into two groups according to the median values of HRQoL scores. Variables included in the models are: gender, age at diagnosis (≤ 60, >60 years), education level, as well as the Roland-Morris (RM) score. We performed all statistical analyses with the statistical software package SAS 9.4 for windows (SAS Institute Inc., Cary, NC, USA), and the predefined significance level was 0.05.

**Results**

The patients group included 83 men (65.4%) and 44 women (34.6%) with the average age at diagnosis of 60.3 (± 11.7) years. The reference group was well matched by sex and age. There was no substantial difference in education level or marital status between these two groups, although the healthy control subjects seemed to be better educated than patients with SLL. More detailed basic and clinical information are shown in Table 1.

As shown in Table 2, the HRQoL in patients with LSS
had evident improvements in both mental and physical health domains one year after surgery compared with measurements before the surgery. However, only such improvements in two mental health domains and three physical health domains were statistically significant. Furthermore, the HRQoL scores remained statistically lower in these patients who had received surgery for SLL compared with the healthy reference population.

Results from logistic regressions showed that being aged 60 years or above was associated with a poorer physical health outcome (adjusted OR=1.6, 95% CI: 1.1-2.3), while men were shown to have better mental health scores than women (adjusted OR=1.8, 95% CI: 1.0-3.2). Severe disability as indicated by a higher RM score was associated with lower scores on both mental and physical health aspects, but only the association with physical health was statistically significant (adjusted OR=1.9, 95% CI: 1.1-3.3).

Discussion

LSS is a common musculoskeletal disease closely associated with impaired HRQoL in patients. Typical symptoms such as server pain and numbness have been shown to have a strong negative influence on HRQoL in LSS patients [11]. Surgery has been widely performed in the treatment for LSS if the nonsurgical measures are not effective. Previous studies have shown that the surgical treatment was more effective than nonsurgical therapies in both relieving symptoms and improving function [12]. However, whether surgical treatment could improve the patients’ HRQoL remains inconclusive by far.

In the present study, we have evaluated HRQoL in a group of Chinese patients suffering from LSS after surgical treatments with a prospective design. Our results suggested significantly improved HRQoL in patients with LSS one year after discharge. Such findings were consistent with earlier lines of evidence [6-8]. This study also confirmed the need for continuous supports for a better HRQoL in these patients, as their HRQoL scores remain lower than the healthy reference group in spite of the acknowledgeable improvements.

A major strength of this study is that we conducted face-to-face interview for HRQoL measurements both before and one year after the treatment. Some previous studies only conducted such interviews for the first time but interviewed participants on telephone for a later follow-up [13]. Such differential interviewing methods might have introduced information bias if there were systematic differences dependent on interview methods. Further advantages of our study include a prospective design and the inclusion of a healthy reference group. However, there are some limitations in our study. For example, as similar to previous studies, we only recruited participants from a single hospital and the results might not be generalized to other settings or populations, particularly those with distinct socioeconomic or clinical backgrounds.

Furthermore, we observed increased scores for general health, social function and role emotion, although the differences were not statistically significant. It is probably because the sample size of this study did not have sufficient statistical power to detect significant findings for these domains. More studies with larger sample sizes are still warranted.

In summary, we have observed improved HRQoL over time in a group of Chinese patients with LSS after surgery. This study also highlighted the usefulness of measuring HRQoL in evaluating prognosis after surgery for LSS. The findings in our study still need to be further confirmed by more investigations with larger sample sizes in external populations.

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References

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