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Investigation of the comfort situation and influencing factors of patients with lumbar disc herniation after UBE surgery

Jiayi LI,¹ Pengmin NIE,¹ Xiaoying CHEN,² Song HAO,¹ Mei YE,¹ and Xiaoling HAN^{*,3}

¹Department of Spine and Osteopathy, Zhuhai People's Hospital (Zhuhai Hospital Affiliated with Jinan University), Zhuhai of Guangdong Province, 519000, China

²Department of Interventional Medicine, Zhuhai People's Hospital (Zhuhai Hospital Affiliated with Jinan University), Zhuhai of Guangdong Province, 519000, China

³Department of Nursing, Zhuhai People's Hospital (Zhuhai Hospital Affiliated with Jinan University), Zhuhai of Guangdong Province, 519000, China

*Corresponding author. Email: 402092635@qq.com, <https://orcid.org/0000-0002-0499-1046>

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Abstract

[Objective] To explore the first time out of bed comfort of patients after lumbar surgery and its influencing factors. [Methods] A total of 158 patients with lumbar disc herniation and sciatica were selected from March 2023 to August 2023. [Results] Among the 158 patients, 56 cases underwent early inclusion of ambulation, 102 cases did not complete early ambulation. The first ambulation time is 12 hours after operation and concentrated on the second day after operation. Single factor analysis showed that two groups of 24 h postoperatively in patients with early pain, fatigue, upright intolerance, sleep quality, early ambulation will, total protein level, anxiety, depression score, postoperative rehabilitation self-efficacy comparison, the difference was statistically significant ($P < 0.05$). logistic regression analysis showed that postoperative pain score, early fatigue, orthostatic intolerance, sleep quality, anxiety and depression score, and rehabilitation self-efficacy score had great influence on early ambulation. [Conclusion] The current situation of early ambulation comfort of patients with lumbar disc herniation after surgery is not good. Nursing staff should strengthen postoperative pain management, encourage patients to enhance confidence, improve the ambulation mode of patients to reduce upright intolerance and fatigue, so as to promote early ambulation of patients and speed up early rehabilitation of patients.

Keywords: Lumbar disc herniation; UBE surgery; Getting out of bed comfort

1. INTRODUCTION

Lumbar disc herniation (LDH)[1] is one of the common degenerative diseases of the spine and the main factor that causes lumbar and leg pain. There are 40 million patients with lumbar disc herniation and sciatica in our country. At present, spinal endoscopy technology is in a new stage of development. Spinal endoscopic techniques in the body use camera system and continuous lavage liquid, can provide a clearer operative field, less surgical trauma, accelerate rehabilitation patients, is finding wider and wider application in spine surgery. Unilateral double-channel endoscopy unilateral biportal endoscopic (UBE) is a new type of micro Surgical treatment of lumbar disc herniation, The UBE technique tends to be perfect in the treatment of many spinal diseases, but the UBE technique has more blood loss and more severe early postoperative low back pain than the single channel spinal endoscopic technique[2]. At present, there is no clear research result on the early comfort of getting out of bed in patients with lumbar spine surgery after UBE surgery.

This study aims to investigate the early comfort of getting out of bed in patients with lumbar disc herniation and its influencing factors through cross-sectional investigation, to understand the current situation of patients undergoing UBE surgery, and to provide reference for further developing programs to improve the comfort of patients getting out of bed. The situation is reported as follows.

2. METHODS

2.1 Research participants

Using convenience sampling method, 158 patients with lumbar disc herniation surgery from March 2023 to August 2023 in a third-class A hospital in a city were selected as the study objects. Inclusion criteria: (1) meet LDH guidelines[3], age >18 years old; (2) Patients requiring unilateral double-channel endoscopic surgery (UBE); (3) The patient is informed and cooperative; (4) clear mind, have a certain ability to read and write; (5) Volunteer to participate in this study. Exclusion criteria: patients with liver, kidney, lung, heart dysfunction, mental instability combined with other spinal diseases, serious intraoperative complications, and contraindications of getting out of bed.

2.2 Research tools

(1) General information of the subjects: including age, sex, education level, type of medical insurance, disease status and surgical information, patients' early getting out of bed activity, including first getting out of bed time, form, range of activities and early getting out of bed willingness.

(2) The Japanese Orthopaedic Association (JOA)[4] main contents of the low back pain disease rating scale include four aspects: subjective symptoms, clinical signs, limited daily activities and bladder function. The lower the score, the worse the lumbar function. Subjective symptoms included low back pain (0-3), leg pain and/or numbness (0-3), and walking ability (0-3). Clinical signs: Straight leg elevation test (0 2 points), sensory disorders (0 2 points), movement disorders (0 2 points), limit of daily activities (0 14 points) and bladder function (-6 0 points), with a total score of 0 29 points; A lower score indicates more dysfunction. (3) visual analogue scale (VAS) [5]: This scale is used for pain assessment. A 10cm

walking scale is used. "0" on the left side of the horizontal scale means no pain, "10" on the right side of the scale means severe pain, and the middle part indicates different degrees of pain.

(4) Early postoperative fatigue[6]: 0 3 scores were used, 0 was no fatigue, normal activity and sleep; 1 is mild weakness, free movement in bed; 2: moderate fatigue, difficulty in completing bed activities, no seminal activity, increased sleep; 3: severe fatigue, inability to sit up, lethargy, emotional instability[7-8].

(5) Self-rating anxiety scale (SAS), compiled by Zung[7] in 1971, is used to evaluate the subjective feelings of individuals with anxiety symptoms, as a basis for measuring the severity of anxiety and its change in treatment. This scale contains a total of 20 items reflecting the subjective feelings of anxiety, and each item adopts a 4-level score according to the frequency of symptoms in the past week. The critical value of anxiety rating is 50 points, and the higher the score, the more obvious the tendency to reflect anxiety. 50-59 is classified as mild anxiety, 60-69 is classified as moderate anxiety, and more than 70 is severe anxiety.

(6) Self-Rating Depression Scale (SDS) was compiled by Zung[8] in 1965 to measure the severity of depression and its change in treatment. The depression assessment threshold was 50 points, and the higher the score, the more obvious the depression tendency. 50 to 59 is mild depression, 60 to 69 is moderate depression, and 70 or more is severe depression. The scale has been widely used in psychology research and practice in China.

2.3 Data collection methods

The general data questionnaire of patients was collected before surgery, the early getting out of bed activity, fatigue and pain of patients were recorded after surgery, and the rehabilitation self-efficacy scale was issued. In order to ensure the validity of the questionnaire, the researchers explained the purpose and significance of the survey to the patients, and after obtaining the informed consent of the patients, the questionnaires were distributed on the spot and retrieved. Patients who walked at least 10m out of bed within 24 hours after surgery with medical assistance (or independently) were in the early get-out group[9], whereas those who did not get out of bed early were in the non-get-out group.

2.4 Statistical analysis

SPSS25.0 statistical software is using for statistical analysis. Measurement data obey the normal distribution with mean standard deviation () said, using test comparing between group; Rank sum test was used for non-normal distribution. Count data with frequency, percentage, comparison between groups using χ^2 test. Multiple factors analysis using logistic regression analysis, $p < 0.05$ for the difference was statistically significant.

3. RESULTS

3.1 General information of the participants

The average age of 158 LDH patients was (56.79 ± 8.68) years. There were 88 males (50.6%) and 70 females (49.4%). There were 70 cases with junior high school education or below, 52 cases with senior high school education, and 36 cases with college education or above. 91.5% of the patients were married; 34.4% of the patients were in the on-the-job state, followed

by farming, accounting for 30.3%; The average monthly income of 59.5% patients was between 2000 and 4000 yuan; The type of medical insurance is mainly medical insurance for urban and rural residents, accounting for 40.2%. There was no significant difference in the general data between the two groups ($P > 0.05$), indicating comparability.

3.2 Conditions of operation Results of univariate analysis of early postoperative activity of patients

Two groups of patients with postoperative pain score 24h, early fatigue, sleep quality, upright intolerance, early ambulation will, postoperative total protein level of self-evaluation of the self-assessment score of anxiety, depression, scoring, JOA score comparison difference was statistically significant ($P < 0.05$). The patients information of the participants is listed in Table 1.

As shown in Table 2, early Postoperative activity of patients with lumbar disc herniation The first time for LDH patients to get out of bed was 10h at the earliest and 78h at the latest.

logistic regression analysis results affecting the early postoperative activity level of LDH patients.

As shown in Table 3, the dependent variable is bed comfort, will all the content was statistically significant in single factor variable as the independent variable (X) into two categories in the Logistic regression analysis, the forward stepwise variable selection method is adopted. The entry and exclusion criteria of independent variables are set as follows: α in = 0.10, α out = 0.15. Binary classification Logistic regression analysis results show that the variables into the equation, a total of nine postoperative total protein levels, including 24h postoperative pain degree, early fatigue degree, upright intolerance, early ambulation intend to score, anxiety/depression, sleep quality, JOA score. Among them, 24h pain degree, postoperative total protein level, anxiety/depression score and total JOA score were recorded with original data. The categorical variables were assigned as follows: whether upright intolerance occurred, no=0, yes=1; early fatigue degree, no fatigue=1; mild fatigue=2; relatively fatigue=3; exhaustion=4; Early willingness to get out of bed, willing=1, unwilling=2, whatever=3. The postoperative pain, early fatigue, sleep quality, anxiety/depression scores and JOA scores were independent risk factors for early postoperative ambulation in LDH patients.

4. DISCUSSION

4.1 Status of early postoperative activity of LDH patients

At present, there is no unified definition of the early time of getting out of bed in the academic community. The earliest time of getting out of bed for 158 patients in this study was 6h after surgery, and the latest time was 75h after surgery, which was earlier than the results of relevant domestic reports[10-11]. There is a certain gap between the activity of getting out of bed 90 minutes after surgery reported by Soffin et al[12], indicating that with the spread and application of the concept of rapid rehabilitation surgery in China in recent years, certain results have been achieved, but the ideal state has not been reached[13]. The reasons for the difference may be the professional rehabilitation training guidance team and adequate preoperative education in foreign countries. Therefore, medical staff need

Table 1. Analysis of the influence of operation and postoperative conditions on early ambulation in patients with lumbar disc herniation.

Item	Get out of bed early (N=56)	Non-Get out of bed early (N=102)	$\chi^2 / t / z$ value	p value
Postoperative indwelling catheter [n (%)]			11.413	0.0163
yes	4	89		
no	52	13		
Postoperative catheter removal time [h, M (P25, P75)]	34 (39, 53)	138 (56,59)	-3.98	0.392
Duration of operation [min, M (P25, P75)]	46 (53,55)	101 (61,44)	-4.66	1.746
24h postoperative pain score [h, M (P25, P75)]	22 (25,58)	70 (28,93)	-5.25	<0.001
First postoperative exhaust time [h, M (P25, P75)]	34 (38,37)	84 (71,46)	-0.345	0.084
Early fatigue degree [n (%)]			-6.773	0.015
No fatigue	50(77,86)	90(81,37)		
Mild weakness	46	13(5,7)		
Moderate weakness	27	8		
Severe fatigue	0	0		
Early willingness to get out of bed [n (%)]			-5.823	0.017
willing	57(91,9)	63(48,9)		
unwilling	8(11,2)	44(40,0)		
Don't mind	0	0		
Orthostatic intolerance	79(23,46)	38(19,10)	-0.326	<0.001
Physiological indexes 24 h after operation (x±s)				
Albumin (g/L, x±s)	61,52±3.94	48.03±4.97	-8.772	0.584
total protein (g/L, x±s)	68.90±6.15	88.93±7.34	-6.412	0.031
JOA (score, x±s)	43.99±2.09	74.13±3.18	-17.553	<0.001
Sleep quality(score, x±s)	12.79±2.60	31.11±2.67	2.192	0.017
SAS(score, x±s)	87,56±1.78	16.77±2.51	-10.51	<0.001
SDS(score, x±s)	36.70±3.29	19.06	-10.703	<0.001

to strengthen professional quality, effective communication with patients and preoperative education.

Table 2. Early movement of patients with lumbar disc herniation (n=158)

Item	Number[n(%)]
First time out of bed (h)	
<24	75(41,5)
24~48	101(56,7)
49~72	5(1,8)
>72	3(2,7)
Early willingness to get out of bed	
willing	118(67,9)
unwilling	53(29,5)
Don't mind	13(7,5)
First time out of bed activity form	
Get out of bed and sit	12(6,7)
Sit by the bed	44(29,5)
Bed chair transfer	4(2,2)
Flat walking	122(68,11)
First time out of bed range of motion	
bedside	42(27,3)
washroom	81(56,2)
Endemic area	77(45,3)
infirmary	0

Table 3. logistic regression analysis of influence on early postoperative activity level of LDH patients.

variable	B	Waldx ²	p	OR	95%CI	
					Low	High
PAIN	-0.470	9.352	0.002	0.794	0.500	0.782
SLEEP	2.650	16.955	0.000	1.025	0.391	0.696
TIRED	-0.632	19.540	0.000	0.522	1.076	3.293
WILLINGNESS	-8.217	4.914	0.027	0.882	1.168	2.989
TP	0.632	6.790	0.009	1.868	0.244	0.681
JOA	0.113	11.767	0.001	0.408	1.031	1.279
SAS	-0.057	7.463	0.001	0.379	3.718	4.171
SDS	-0.753	13.258	0.000	0.571	2.374	6.108
ORTHOSTATIC	-0.897	8.927	0.003	0.296	0.830	1.051
CONSTANT	-8.946	2.425	0.127	0.000		

4.2 Postoperative pain 24h after surgery Early postoperative pain is one of the reasons that affect patients' early movement out of bed

The results of this study showed that the pain score of the early getting out of bed group was lower than that of the early not getting out of bed group, which was similar to the results of X,Yan, et al[14]. Published in 2018 in the[15] pain management guide points out that the pain is one of the chief complaint of orthopaedic patients with perioperative symptoms.The

nature and degree of pain is an important basis for the clinical diagnosis and treatment of orthopedic surgeons. Postoperative pain is a progressive pain that occurs immediately after surgery. The generation of pain is a stress protection response of the body to tissue injury. If it cannot be controlled as soon as possible in the initial state, it may develop into chronic pain, pathological pain or mixed pain. Therefore, preventing the chronic transformation of acute pain after surgery is the focus of current medical attention [16].

4.3 The degree of early fatigue is an important factor affecting the postoperative movement of patients

Degree of Early Fatigue Postoperative fatigue often occurs after slight activities of patients, manifested as a series of symptoms such as fatigue, insomnia, inattention and stress[17], which is the most common complication in the perioperative period and hinders the postoperative rehabilitation of patients[18]. The results of this study showed that the higher the fatigue score, the later the early ambulation time. Postoperative fatigue is a physiological, psychological, environmental and social factor the result of joint action. Elderly patients or patients with preoperative malnutrition have poor tolerance to surgical trauma due to muscle tissue reduction and fatigue. Therefore, in order to promote early ambulation and improve the fatigue symptoms of patients after surgery, we should pay more attention to the preoperative state of patients and strengthen the fatigue management of patients.

4.4 The occurrence of upright intolerance has an important impact on the quality of life and comfort of patients getting out of bed

The results of this study shows that the upright intolerance of patients in the early get-out group was higher than that in the early get-out group. Patients in this group did not dare to get out of bed because of fear of wound pain, fear of falling, pipeline slip, etc. A small number of patients are influenced by traditional ideas, and need absolute bed rest after surgery, lacking the confidence to get out of bed early. Therefore, it is necessary to correctly evaluate the physical and mental state of patients and give positive guidance. A study shows[19] in patients during hospitalization, the implementation of incentive system can increase the early ambulation of patients with willingness to further promote patients early out of bed.

4.5 Lumbar JOA score has an important effect on the quality of life and comfort of patients getting out of bed

The influence of lumbar JOA score on the comfort of getting out of bed was mainly reflected in the degree of low back pain, range of motion, sensory disturbance, muscle weakness, bladder function, ability of daily living and time of getting out of bed. The sub-item of getting out of bed activity time refers to the time when patients begin to get out of bed activity. The early and late time of getting out of bed may affect the recovery process and the comfort of getting out of bed. In general, the earliest possible time for patients to get out of bed can help reduce pain and promote recovery, but the specific time needs to be determined according to the specific situation of the patient and the recommendation of the doctor. If the patient gets out of bed too late, it may make him feel uncomfortable or painful,

which will affect his comfort. In addition, it can also be improved from other aspects, such as reducing pain, improving mobility, eliminating sensory disorders, strengthening muscle strength, improving bladder function, improving daily living ability and appropriately increasing the time to get out of bed and other measures to provide appropriate support and help, so that patients feel more comfortable and satisfied in the rehabilitation process.

4.6 Sleep quality is also a problem that should the pain attention to in the early post-operative activities of lumbar spine

Some patients may feel sleep deprivation or insomnia, which can affect their recovery process and quality of life. In order to improve the quality of sleep, patients can take some measures, such as maintaining a good sleeping position, avoiding the use of stimulant drugs or drinks, and maintaining a regular schedule. In addition, paying attention to the quiet and comfortable sleep environment, as well as maintaining a good state of mind can also help improve the quality of sleep.

4.7 Anxiety and depression often lead to increased sensitivity to pain

After surgery, patients may feel more intense pain, which affects the comfort of their activities out of bed. And anxiety and depression often lead to poor sleep quality. After surgery, poor sleep quality may further exacerbate pain and discomfort, which can affect the comfort of getting out of bed activities. Anxiety and depression can lead to reduced willingness to get out of bed[20]. This psychological resistance may further affect the physical recovery and prolong the recovery time. Therefore, for postoperative patients, timely adjustment of mentality and maintaining a positive and optimistic mood are very important to improve the comfort of getting out of bed and the overall recovery of the body. At the same time, medical staff should also pay close attention to the emotional state of patients and provide necessary psychological support to help patients better cope with postoperative anxiety and depression.

5. SUMMARY

The current situation of early comfort of getting out of bed after UBE surgery in patients with lumbar disc herniation is not ideal. On the one hand, due to the strong psychological protection of the joint [21], patients are worried that exercise will affect the service life and functionality of the joint, and the postoperative exercise compliance is not strong; On the other hand, patients' irrational pain thinking, which overemphasizes their own perception of pain intensity, reduces the pain threshold and increases negative pain belief [22].

In conclusion, from the above findings, it can be seen that 24h postoperative pain degree, early fatigue degree, upright intolerance, sleep quality, anxiety and depression score, rehabilitation self-efficacy score are the main influencing factors. The comfort of getting out of bed early after lumbar surgery should be considered from many aspects. Patients need to pay attention to pain perception, muscle fatigue, upright intolerance, rehabilitation effectiveness results, psychological adaptation and sleep quality. At the same time, patients can take appropriate measures to relieve discomfort and increase comfort, such as using painkillers, rationally arranging activities, using walking AIDS, maintaining correct posture,

paying attention to rest and adjusting the psychological state of the heart during perioperative period.

NOTE

Jiayi LI and Pengmin NIE contributed equally.

STATEMENT

There is no conflict of interest in this article.

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