

## NURSING CARE OUTCOMES IN PATIENTS WITH SPONDYLOLISTHESIS UNDERWENT LUMBAR INTERBODY FUSION AT THAI BINH GENERAL HOSPITAL

### ABSTRACT

**Objective:** To evaluate the nursing care outcomes in patients with spondylolisthesis who underwent lumbar interbody fusion at Thai Binh General Hospital from January 2022 to January 2024.

**Method:** A prospective descriptive study was conducted among 81 patients diagnosed with lumbar spondylolisthesis and operated on at the Neurospine Surgery Department of Thai Binh General Hospital.

**Results:** Primary surgical wound healing was achieved in 96.3% of cases. Post-operatively, 75.31% of patients experienced mild pain. All patients (100%) were instructed in rehabilitation exercises. A survey of patients revealed that 97.53% of nurses demonstrated excellent or good caring attitudes, and 98.76% of patients reported being very satisfied or satisfied with the nursing care and hospital facilities.

**Conclusion:** Nursing care for patients with spondylolisthesis who underwent lumbar interbody fusion at Thai Binh General Hospital was highly effective, with a high level of patient satisfaction.

**Keywords:** *lumbar spondylolisthesis, lumbar interbody fusion, nursing care, caring attitude.*

### I. INTRODUCTION

Spondylolisthesis is a condition where a vertebra slips out of place, usually in the lower back, causing symptoms like back pain, leg pain, numbness, or weakness. There are many causes, but the main causes were spondylosis and spondylysis [1]. In addition, lumbar spondylolisthesis can also be caused by congenital abnormalities, trauma or tumors. Most patients with lumbar spondylolisthesis have a silent progression without symptoms. When going to the hospital for examination, patients often suffered from symptoms of nerve compression, lumbar spine pain due to instability, and in the late stages, it can even cause more severe nerve lesions such as paralysis, changes in posture of the

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lumbar spine and affect gait [2]. Caring, monitoring, and early rehabilitation after surgery is an important task of a nurse, contributing to the success of the surgery, improving the effectiveness of treatment, reducing post-operative complications, shortening the length of hospital stay and reducing treatment costs [3]. There are several studies on post-operative care of patients with spondylolisthesis underwent lumbar interbody fusion conducted at central hospitals, very few studies on this topic have been conducted at provincial hospitals. This study aimed to assess the effectiveness of comprehensive patient care and evaluate patient satisfaction levels at a representative provincial hospital, with a focus on Thai Binh General Hospital.

### II. SUBJECTS AND METHODS

#### 2.1. SUBJECTS

**Inclusion Criteria:** (1) Patients who underwent lumbar interbody fusion surgery and received postoperative care in the Neurospine Surgery Department of Thai Binh General Hospital. (2) Patients who consented to participate in the study.

**Exclusion Criteria:** (1) Patients who underwent spinal tumor surgery. (2) Patients who were comatose or lacked the cognitive ability to respond to interviews. (3) Patients with cancer.

Based on these criteria, 81 patients diagnosed with spondylolisthesis who underwent lumbar interbody fusion surgery at Thai Binh General Hospital between January 2022 and January 2024 were selected

#### 2.2. Methods

This was a prospective descriptive study employing convenience sampling.

All eligible patients during the study period were included. Patients received nursing care based on a standardized protocol.

For the first three days, surgical wound dressings were changed daily. Drainage levels were monitored, and the drain was removed once the fluid volume in the reservoir dropped below 30 ml/day. A rehabilitation protocol was implemented. Pain management was performed, with pain relief assessed using the Visual Analog Scale, and side effects of analgesics were closely monitored.

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Medications were administered as prescribed by the physician.

Patient satisfaction was assessed prior to discharge using a structured questionnaire.

### 2.3. Data processing

Data coding, entry, and analysis were conducted using SPSS version 22.0. Descriptive statistical methods were employed to characterize the dataset, including the calculation of frequencies, percentages, and mean values. Comparative analyses between groups were performed using appropriate statistical tests: ANOVA for the comparison of two or more mean values and the  $\chi^2$  test for the comparison of proportions. Statistical significance was defined as  $p < 0.05$ .

## III. RESULTS

**Age and gender characteristics:** 81 patients in our study included 61 females (24.7%) and 20 males (75.3%), with a median age of 59.75 years old (ranging from 26 to 89 years old).

**Table 1. Characteristics of radiography**

Characteristics of radiography	Cases (n = 81)	Rate (%)
Location of spondylolisthesis	L3	8
	L4	42
	L5	27
	L3 and L4	2
	L4 and L5	2
Degree of spondylolisthesis	Grade I	58
	Grade II	18
	Grade III	4
	Grade IV	1
		71.60
		22.22
		4.94
		1.24

The majority of patients had L4 spondylolisthesis, accounting for 51.85 %. 4.94% of patients had double-level spondylolisthesis. The degree of spondylolisthesis was mainly grade I and grade II, however, there was one patient with grade 4 spondylolisthesis.

**Table 2. Characteristics of Magnetic resonance imaging**

Characteristics of Magnetic resonance imaging	Cases (n = 81)	Rate (%)
Canal stenosis	62	76.54
Foraminal stenosis	19	23.46
Disc herniation	07	8.64
Disc degeneration	81	100

76.54% of patients had canal stenosis. Foraminal stenosis and disc herniation were less common. 100% of patients had disc degeneration on magnetic resonance imaging (MRI).

**Table 3. Pain management care**

Therapy	Cases (n=81)	Rate (%)
Patient-controlled epidural analgesia	61	75.30
Intravenous patient-controlled analgesia	5	6.17
Multimodal analgesia	15	18.53
Total	81	100

Patient-controlled epidural analgesia mainly applied after surgery, accounting for 75.3%. Intravenous patient-controlled analgesia was applied in 6.17%. 18.52% of patients received multimodal analgesia because they did not agree to the above pain relief therapies.

**Table 4. Post-operative nursing care outcomes**

Post-operative nursing care outcomes		Cases (n=81)	Rate (%)	
Surgical wound assessment	Dry	64	79.01	
	Swelling	10	12.35	
	Exudate	4	4.94	
	Infection	3	3.70	
Dressing change	Painless	12	14.81	
	mild pain	61	75.31	
	severe pain	8	9.88	
Surgical drainage care	Drainage failure		2.47	
	Time of drain removal	After 24 hours	5	6.17
		After 48 hours	68	83.95
		After 72 hours	8	9.88
Urinary tract care	Urethral catheterization	76	93.82	
	Bladder irrigation	8	9.88	
	Genital hygiene	81	100	

Dry surgical wounds, no signs of inflammation, infection accounted for 79.01%. Surgical site infection accounted for 3.7%. These were patients with long surgical times lasting more than 4 hours, with diseases that put them at risk of infection such as diabetes, hypertension, etc. 4.94% of patients had incomplete drainage of subcutaneous fluid requiring aspiration. 12.35% of patients had swelling of the surgical wound but no signs of systemic infection, responded well to wound care, and were considered to be an inflammatory reaction to subcutaneous sutures. Primary wound healing rate was 96.3%.

During the dressing change, 9.88% of patients still had severe pain. The rate of drainage removal after 48 hours was 83.95%, and 2.47% had drainage slippage or rupture (Drainage failure). Of the 93.82% of patients who had a urethral catheterization, the rate of bladder irrigation was 9.88%, and 100% of patients had their genitals cleaned (Genital hygiene).

**Table 5. Use of prophylactic antibiotics**

Use of prophylactic antibiotics	Cases (n=81)	Rate (%)
Yes	69	85.19
No	12	14.81
Change antibiotics	5	6.17
Number of patients successfully using prophylactic antibiotics for infection prevention	64	79.01

The number of patients using prophylactic antibiotics accounted for 85.19%, with a success rate of 79.01% in infection prevention. The remaining 6.17% of patients required a change in antibiotics.

**Table 6. Results of drug prescription implementation**

Drug prescription implementation	Cases	Rate (%)
Fully	78	95.06
Partially	03	4.94

The results of nurses' implementation of medical orders were compared with medical records and patients were asked, showing that: Fully implementing medical orders from doctors and having a full and correct care regimen as prescribed accounted for 95.06%; there were still 4.94% of patients whose

medical orders were not fully implemented by nurses. The reason was that the number of nurses in our hospital was small, and the workload was very high.

**Table 7. Degree of back and leg pain before and after surgery**

Visual analogue scale (VAS)	Preoperative				Postoperative			
	Back		Leg		Back		Leg	
	Cases (n=81)	Rate (%)	Cases (n=81)	Rate (%)	Cases (n=81)	Rate (%)	Cases (n=81)	Rate (%)
No pain (0)	0	0	9	11.11	73	90.12	39	48.15
Mild (1 - 3)	28	34.57	12	14.81	5	6.17	35	43.21
Moderate (4 - 6)	49	60.49	55	67.91	3	3.71	7	8.64
Severe (7 - 10)	4	4.94	5	6.17	0	0	0	0
Total	81	100	81	100	81	100	81	100

VAS score of back pain before surgery 4 - 6 accounted for 60.49%; severe pain made up 4.94%. After surgery, the pain rate improved significantly, 90.12% had no pain, only 3.70% had moderate pain, no patient had severe pain. VAS score of leg pain before surgery 4 - 6 comprise 67.90%; severe pain composed 6.17%. After surgery, the pain rate improved significantly, 48.15% had no pain, only 8.64% had moderate pain, no patient had severe pain, with p value < 0.05.

**Tablet 8. Health education**

Health education	Cases (n=81)	Rate (%)
Drug usage instructions	75	92.59
Cleaning instructions	79	97.53
Motor rehabilitation instructions	81	100
Dietary instructions	74	91.36
Pre-discharge consultation	63	77.78

Among the health education contents for patients, motor rehabilitation instructions accounted for the highest percentage of 100%; the lowest was pre-discharge consultation, only 77.78%.

**Table 9. General assessment before discharge**

Patient feedbacks		Cases (n=81)	Rate (%)
Nurse's caring attitude	Excellent	64	79.01
	Good	15	18.52
	Fair	02	2.47
Satisfaction level	Very satisfied	75	92.59
	Satisfied	5	6.17
	Neutral	1	1.24

79.01% of patients said that nurses had excellent caring attitude, 18.52% said that nurses' caring attitude was good. The percentage of patients who were very satisfied with the nursing care was 92.59%, 13.58% were satisfied and 1.24% felt neutral.

#### IV. DISCUSSION

Lumbar interbody fusion surgery to treat spondylolisthesis has been successfully implemented in Vietnam for more than 20 years. Comprehensive post-operative care of patients has contributed significantly to the success of the surgery, creating trust for patients. In the 81 patients of our study, the median age was 59.75 years old years old, the female rate was 3 times higher than that of male. The majority of patients had L4

spondylolisthesis. The degree of spondylolisthesis was mainly grade I and grade II. 76.54% of patients had canal stenosis and 100% of patients had disc degeneration on magnetic resonance imaging (MRI). This result was consistent with Katz JN 's research (2022) [1]. The use of prophylactic antibiotics in 85.19% of patients showed good anti-infection effectiveness. The primary wound healing rate was 96.3%. Although there were

3.70% of surgical site infections, these were superficial infections, detected promptly during the care process, so they did not affect the spinal hardware. To minimize infection, nurses need to prepare before surgery strictly according to the procedure: Bathing with 2% chlorhexidine solution, cutting fingernails and toenails. 2.47% of patients had drainage tubes slipped and broken, showing that patient transportation did not strictly follow the principles and the technique for securing drains to the skin was not good. When transferring a patient to a bed, nurses need to pay attention to the IV lines and drainage tubes, and absolutely avoid pulling or stretching them [2].

The results of nurses' implementation of medical orders were collated with medical records and patient inquiries, exhibiting that: 78 patients had their orders fully implemented by nurses and received adequate care, as prescribed, accounting for 95.06%, however, there were still 4.94% of patients whose orders were not fully implemented by nurses due to some objective factors. There were no cases of forgetting or missing orders.

Evaluation of wound pain by VAS score after surgery indicated that no patient had severe pain, the proportion of patients with no pain and mild pain accounted for 90.12% and 6.17% respectively. Epidural analgesia was the most commonly used method in surgical patients, constituted 75.30%, followed by intravenous analgesia made up 6.17%.

Among the health education contents for patients, motor rehabilitation instructions accounted for the highest percentage of 100%, the lowest was pre-discharge consultation with only 77.78%. This rate was much higher than the study by Nguyen Thi Thin (2023) with a health education rate of only 66.2% [4]. Early motor rehabilitation is very important to help patients quickly recover motor function, reduce the risk of deep vein thrombosis, pressure ulcers, especially for obese, elderly patients, and patients with a history of embolism [3].

In Vietnam, research on patient satisfaction with medical services is increasingly interested. The rate of patient satisfaction among recent studies

has a high difference, in general, patients are quite satisfied with the quality of care services, but not satisfied with the care attitude of medical staff. In our study: 80.22% of patients rated the nurses as having excellent care attitude, 18.52% of patients said that the nursing care attitude was at a good level. 92.59% of patients were very satisfied with the care of nurses, 13.58% rated satisfied and 1.23% rated neutral. The results of Ha Thuan's study (2023) showed that the rate of inpatients who were very satisfied was 45.4% and the rate of satisfaction was 53.1% [5].

## V. CONCLUSION

The care of patients with spondylolisthesis underwent lumbar interbody fusion at Thai Binh General Hospital is highly appreciated and has achieved patient satisfaction and trust.

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