



Exploring Prevalence, Characteristics of Neuropathic Pain and Related Factors Among Patients Receiving Lumbar Spine Surgery

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Background

Neuropathic pain is defined as pain with dull, tingling, electrical shocks, burning sensation and numbness of limbs. This type of pain exists even after receiving lumbar spine surgery. Limited studies have followed up the changes of neuropathic pain perceived by patients after surgery.

Purpose

To observe the prevalence, characteristics of neuropathic pain and to examine the related factors among patients receiving lumbar spine surgery post-op 3 months.

Methods

1. Design: Prospective and observational study

	Pre-operative day 1	Post-operative day 3	Post-operative day 7	Post-operative 1st month	Post-operative 3rd month
Demographic related	v				
Treatment related		v	v	v	v
NRS		v	v	v	v
CIPQ		v	v	v	v

2. Instrument:

- Numerical Rating Scale(NRS) for wound pain
- Chinese Identification Pain Questionnaire(CIPQ) for neuropathic pain

3. Inclusion & exclusion criteria:

Inclusion	Exclusion
1. ≥20 years old, conscious clear understand Mandarin	1. Having numbness on four limbs in distal part
2. Diagnosed with HIVD, spondylolisthesis and spinal stenosis and recommend to receive surgery	2. Diagnosed with vertebral infection, spinal tumor, spinal fracture and peripheral arterial occlusive disease

Results

In this study, 41 participants were recruited. 9 participants finished all four follow-up surveys, 31 participants finished three follow-up surveys, 37 participants finished two follow-up surveys, and 40 participants finished one follow-up survey (Figure 1).

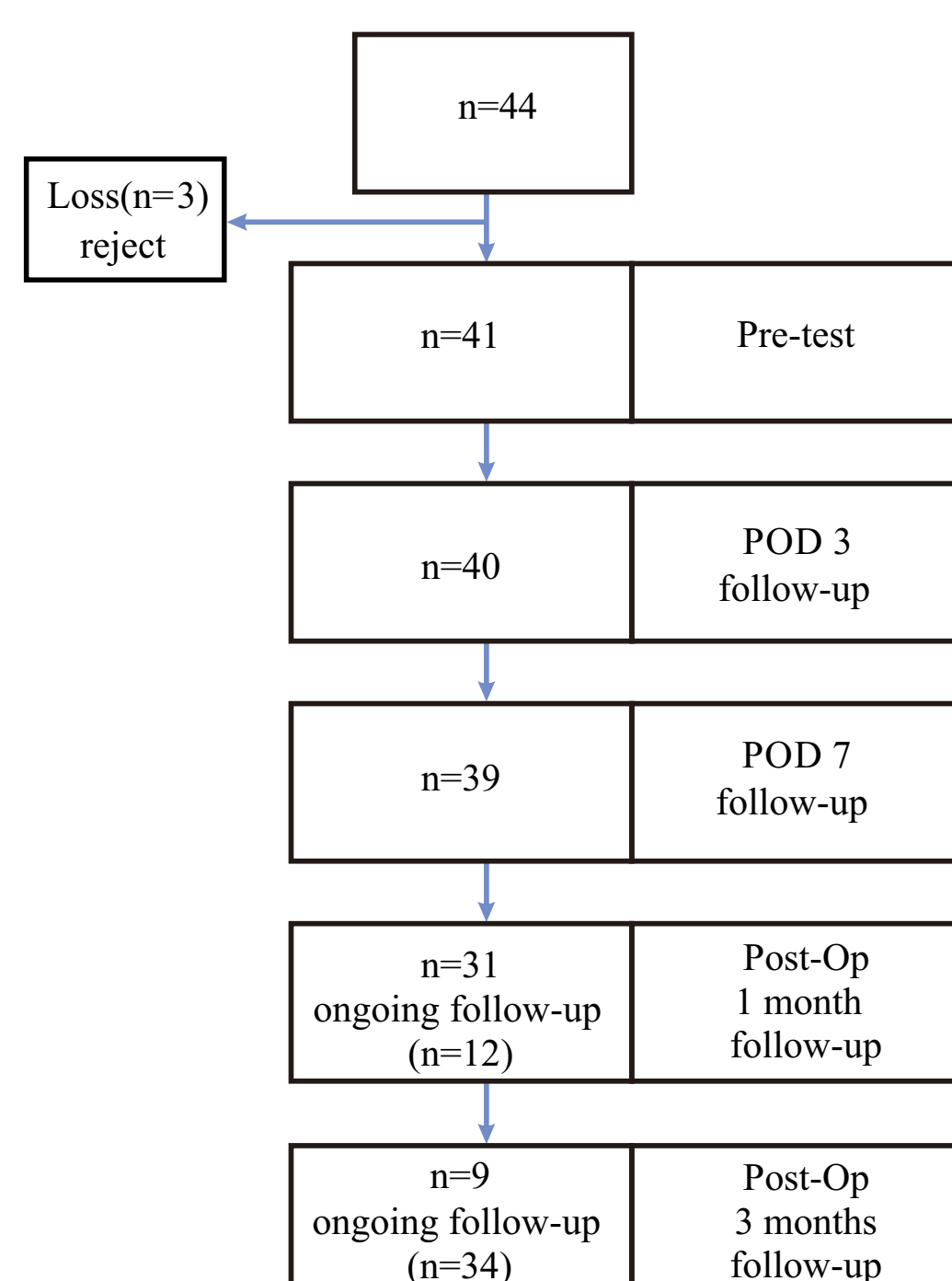


Figure 1. Flowchart of 5 Time-Point Data Collection

Table 1. Participants' Demographic Characteristics

Characteristics	Total N=41	With job N=26
Demographic	n(%)	n(%)
Gender		
Male	23(56.1)	
Female	18(43.9)	
Age, Mean/Range	55.2(20-78)	
Education		
≥9 years	18(43.9)	
10-12 years	12(29.3)	
>12 years	11(26.8)	
Marriage		
Yes	29(70.7)	
No	9(22)	
Divorced	3(7.3)	
BMI		
<18.5	1(2.4)	
18.5~24	19(46.3)	
2~426	9(22.0)	
27~29	8(19.5)	
30~34	4(9.8)	
Smoking		
Yes	10(24.4)	
No	31(75.6)	
Drinking		
Yes	7(17.1)	
No	34(82.9)	
Occupation		
Yes	26(63.4)	
No	5(12.2)	
Retired	10(24.4)	
Years with Occupation		
<5 years	6(23.1)	
6~10 years	1(3.8)	
11~15 years	3(11.5)	
>15 years	16(61.5)	
Need Carry Heavy Loads		
Yes	12(46)	
No	14(54)	
Sedentary		
Yes	13(50)	
No	13(50)	
Require Long Standing		
Yes	14(53.8)	
No	12(46.2)	
Require Repeated Movement on Back		
Yes	1(3.8)	
No	25(96.2)	
Duration of Symptoms		
<6 months	9(22)	
7~12 months	9(22)	
1~3 years	10(24.3)	
>3 years	13(31.7)	
Diabetes		
Yes	10(24.4)	
No	31(75.6)	
Lumbar Surgery History		
Yes	3(7.3)	
No	38(92.7)	

Table 2. Treatment Related Characteristics for All Participants

Treatment Related Characteristics	POD 3 N=40	POD 7 N=37	Post-Op 1 month N=31	Post-Op 3 months N=9
Number of Lesion Involved	n(%)	n(%)	n(%)	n(%)
1	15(36.6)			
2	21(51.2)			
3	4(9.8)			
4	1(2.4)			
Implantation				
Yes	33(80.5)			
No	8(19.5)			
Brace				
Yes	12(29.3)	15(40.5)	17(54.8)	5(55.6)
No	29(70.7)	22(59.5)	14(45.2)	4(44.4)
Analgesic				
Yes	40(100)	36(97.3)	19(61.3)	2(22.2)
No	0(0)	1(2.7)	12(38.7)	7(77.8)
Muscle Relaxant Using				
Yes	3(7.5)	10(27)	12(38.7)	2(22.2)
No	37(92.5)	27(73)	19(61.3)	7(77.8)

Table 3. Wound Pain and Neuropathic Pain for All Participants in Different Time Point

	Pre-OP N=41	POD 3 N=40	POD 7 N=37	Post-Op 1 month N=31	Post-Op 3 months N=9
Wound Pain(NRS)					
Mean/SD		4.58/1.95	3.38/1.76	1.42/1.52	0.44/0.96
Range		(0~10)	(0~7)	(0~5)	(0~4)
Neuropathic Pain(CIPQ)					
Mean/SD	1.90/1.14	0.95/1.09	1.16/1.13	1.00/1.19	1.00/1.15
Range	(0~4)	(0~4)	(0~5)	(0~4)	(0~4)
Having Neuropathic Pain					
Yes	14(34)	5(12.5)	4(10.8)	6(19.4)	1(11.1)
No	27(66)	35(87.5)	33(89.2)	25(80.6)	8(88.9)

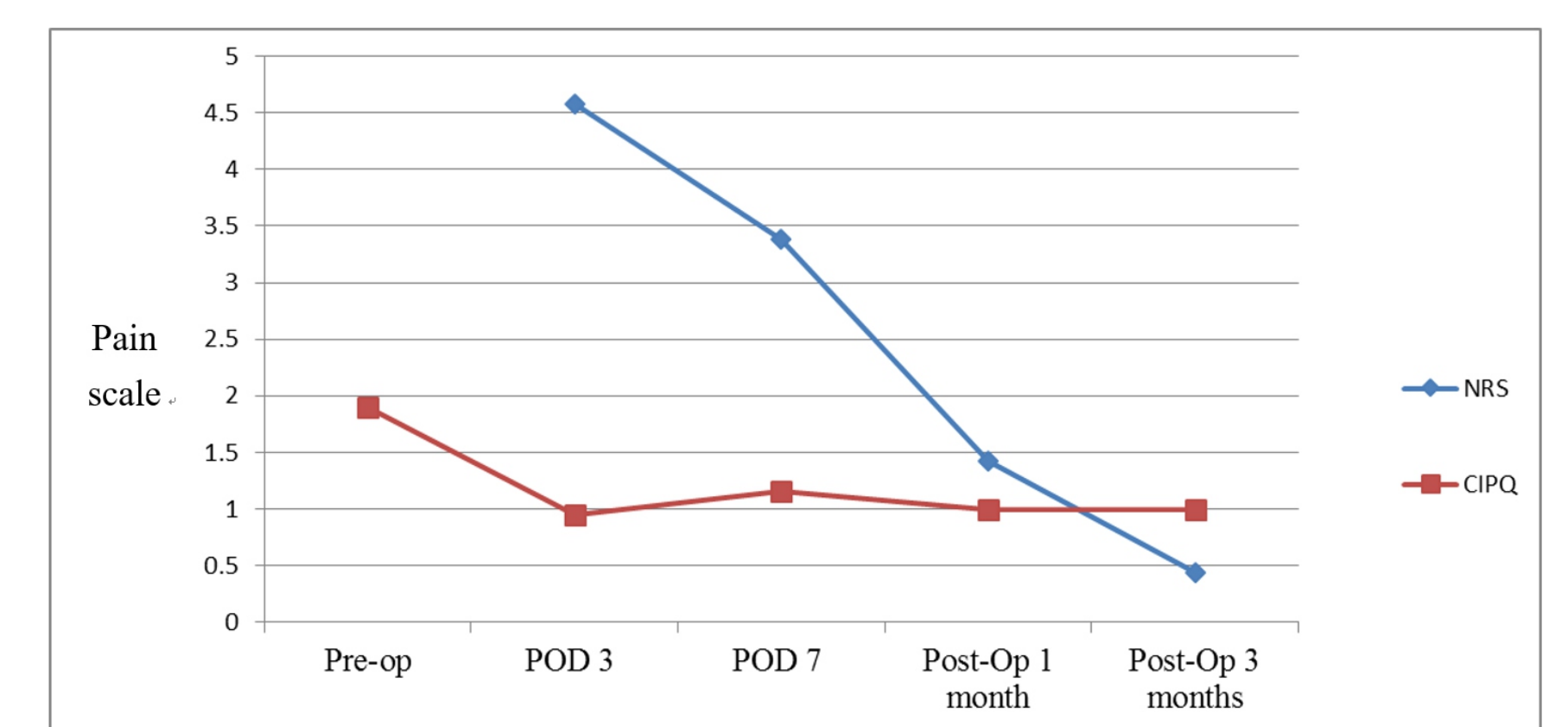


Figure 2. The Trend of Wound Pain and Neuropathic Pain

Discussion & Conclusion

1. More than half of the participants had related symptoms for at least 1 year before receiving surgical treatment.
2. The proportion of participants using brace was less than those without using it on POD 3 and POD 7. However, the proportion of participants using brace increased on post-op month 1 and 3.
3. There is a decrease in wound pain score when compare to neuropathic pain score.

