

Clinical and Radiologic Factors Predicting the Low Back Pain after Discectomy

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– Abstract –

Study design : Retrospective analysis to evaluate predictive factors of low back pain after discectomy in lumbar disc herniation.

Objective : We analysed clinical and radiological predictive factors which possibly contribute to postoperative low back pain in herniated lumbar disc disease.

Summary of literature review : There was no statistically significant factors which contribute to postoperative low back pain.

Materials and Methods : Ninety two patients with herniated lumbar disc who were treated by one level simple discectomy from June 1995 to June 2000 were included in this study. They were divided into two groups by severity of postoperative low back pain, back pain group and no back pain group. We analyzed clinical and radiological factors retrospectively in each group by medical records, preoperative radiographs and telephone interview. Then statistical analysis was performed with Chi-square test and logistic regression analysis. Confidence interval was 95%.

Results : Eighteen patients (19.6%) were in back pain group and seventy four patients (80.4%) were in no back pain group. Among patients over 50 years old and below 50 years old, the ratio of low back pain after discectomy was 33% and 13.8% respectively (Odds ratio=3.1, confidence interval 1.07~9.03). It was proved statistically that except age factor, such factors as follows did not affect postoperative lower back pain. Sex, smoking, preceeding low back pain before discectomy, level of discectomy, disc space narrowing, bony spur, grade of disc degeneration, presence of high intensity zone of disc.

Conclusions : There was no other significant predictive factors of post-discectomy low back pain than the age over 50 years old.

Key Words : Lumbar spine, Herniated disc disease, Discectomy, Low back pain, Predictive factor

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3)

SAS(SAS institute , version 6.12)

Chi-square

95%

1.

1995 6 2000 6

256

92 74 (80.4%), 18
(19.6%) , 38.2 44.2
(Fig. 1).

1

가 가 92

50 33.3%
13.8% 50 가
50 (=3.1, 95% 1.07~
9.03).

2.

1)

(Table 1).

92

1

가

1.6
(Table 2).

2)

2-3 3-4 2 3
4-5 , 57 14 ,
5 - 1 30 4 4-5
가
(P>0.05,

(MRI)

가

11

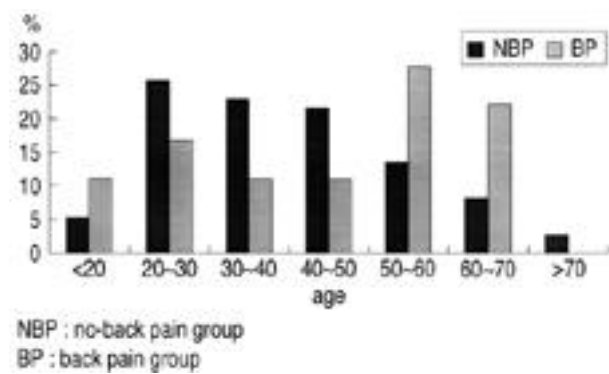


Fig. 1. age distribution characteristics in each group

Table 1. Sociodemographic characteristics associated with increased risk of postoperative back pain

Risk factors	number of subjects	number of postoperative back pain (percents)	Odds ratio	95% confidence interval*
Age				
< 50 yrs old	65	9 (13.8)	1.00	
> 50 yrs old	27	9 (33.3)	3.11 [†]	1.07~9.03
Sex				
Male	56	14 (25.0)	1.00	
Female	36	4 (11.1)	0.38	0.11~9.03
Smoking				
Nonsmoking	47	8 (17.0)	1.00	
Smoking	45	10 (22.2)	1.40	0.49~3.92

* confidence interval was calculated by logistic regression analysis method.

[†] Statistically meaningful factor**Table 2.** Preoperative low back pain (LBP) associated with increased risk of postoperative back pain

LBP [‡]	Number of subjects	Number of postoperative back pain (percents)	Odds ratio	95% confidence interval*
Preoperative LBP				
None	9	3 (33.3)	1.00	
Mild [§]	45	6 (13.3)	0.31	0.06~1.57
Moderate	17	5 (29.4)	0.80	0.14~4.72
Severe [¶]	21	4 (19.0)	0.47	0.08~2.74
LBP previous to RP**				
No definite LBP	39	6 (15.4)	1.00	
definite LBP	41	12 (22.6)	1.61	0.54~4.74

* confidence interval was calculated by logistic regression analysis method.

[‡] LBP: lower back pain[§] mild: lower back pain milder than radiating pain^{||} moderate: lower back pain with severity similar to radiating pain[¶] severe: lower back pain more severe than radiating pain

** RP: radiating pain

Chi-square

.).

Chi-square

.).

가 (Table 3).

30%가

2.8

가

(Table 3).

grade II

grade III

33.3%, grade

4

IV 19.0%, grade V

11.8%

15).

grade III

가

가

(P>0.05,

grade

11)

Table 3. Radiologic characteristics associated with increased risk of postoperative back pain

Radiologic findings	Number of subjects	Number of postoperative back pain (percents)	Odds ratio	95% confidence interval*
Disc space narrowing (discectomy level)				
No	41	9 (21.9)	1.00	
Yes	53	9 (17.0)	0.76	0.27~2.13
Disc space narrowing (other level)				
No	79	17 (21.5)	1.00	
Yes	13	1 (7.7)	0.30	0.03~2.50
Bony spur (discectomy level)				
No	56	8 (14.3)	1.00	
Yes	36	10 (27.7)	2.30	0.81~6.56
Bony spur (other level)				
No	58	9 (15.5)	1.00	
Yes	34	9 (26.5)	1.96	0.69~5.55
HIZ ^{††}				
No	74 ^{‡‡}	12 (16.2)	1.00	
Yes	11 ^{‡‡}	4 (36.4)	2.76	0.69~10.94

* confidence interval was calculated by logistic regression analysis method.

^{††} HIZ : finding of high intensity zone on MRI

^{‡‡} 11 cases were excluded (9 cases from no back pain group and 2 from back pain group) because they have no MRI.

가 (Table 1).

Finneson⁴⁾ Roh¹²⁾ 4-5 24.5%

(P>0.05). Weir²²⁾가 4-5 가 1-2 2-3 가

가

가 , Weber¹⁷⁾, Hurme Alan- Dabbs Dabbs³⁾ 가 6 가 50 33.3% 50 가 (Table 1). Weber¹⁷⁾ 가 가 Manniche⁸⁾ Scott¹³⁾ 가 7,16)

가

50

가

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가

1995 6 2000 6

1 가 가 92

가

logistic regression

18 , 74 . 50

33%

1.07~9.03). 4-5

가

50

Chi-square

13.8% , 50

(=3.1,

(p>0.05).