

The Effectiveness of Duloxetine for Treatment of Intractable Pain due to Spinal Degenerative Disease

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INTRODUCTION

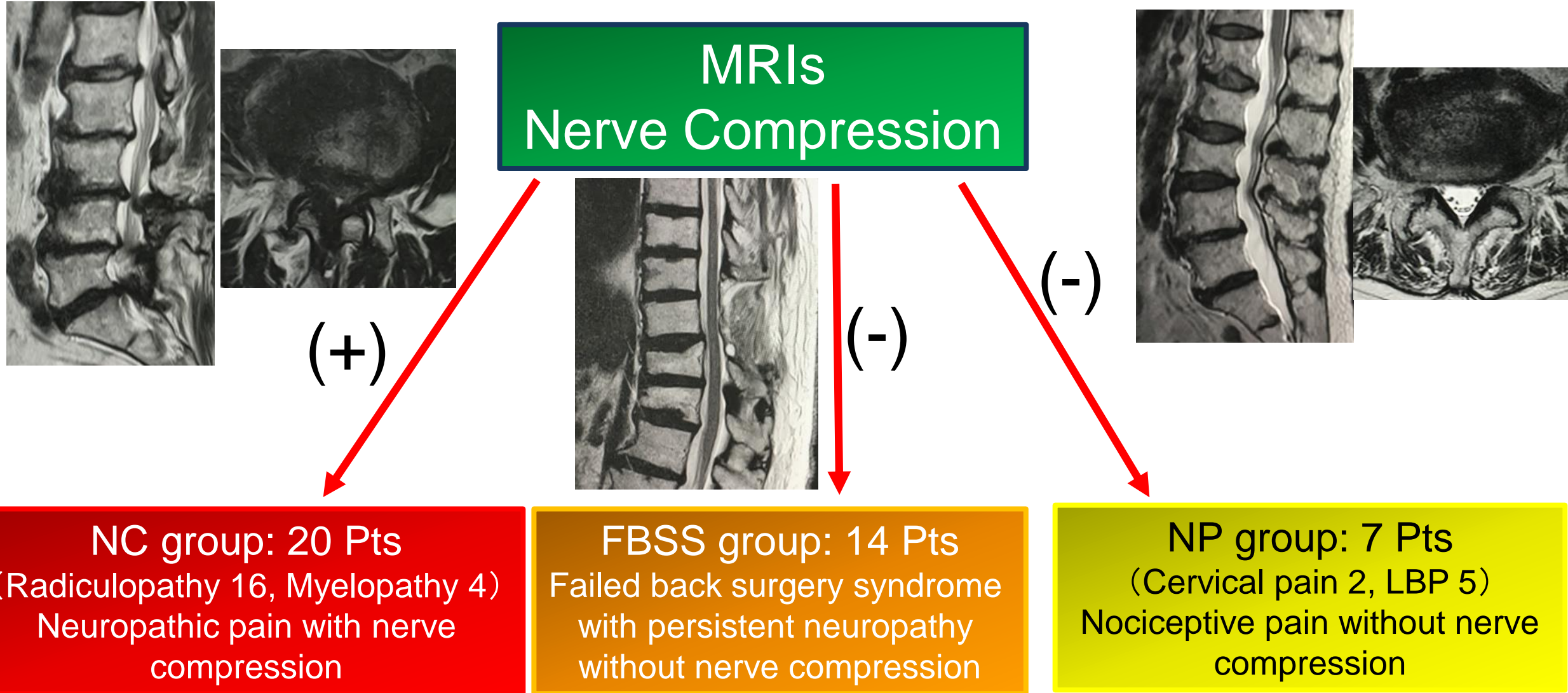
- The population of older adults affected by spinal degenerative disease has been steadily increasing, and there are many patients with intractable pain resistant to pharmacotherapeutic treatment.

This study will consider the results of initiating duloxetine (DLX) as a treatment for spinal degenerative disease in patients for whom pain control using NSAIDs or pregabalin was difficult.

MATERIALS & METHODS 1

- The subjects of this study were 41 patients (mean age 72.3 years old, 18 male and 23 female) who were prescribed duloxetine (DLX) for treatment of spinal degenerative disease presenting with intractable pain, for whom 3 or more months of treatment with NSAIDs or pregabalin from 2013 to 2016 was ineffective.
- The affected area
Lumbar spine 26 patients, Cervical spine 14 patients,
Thoracic spine 1 patient.
- All patients were assessed for nerve compression using MRIs.

MATERIALS & METHODS 2



MATERIALS & METHODS 3

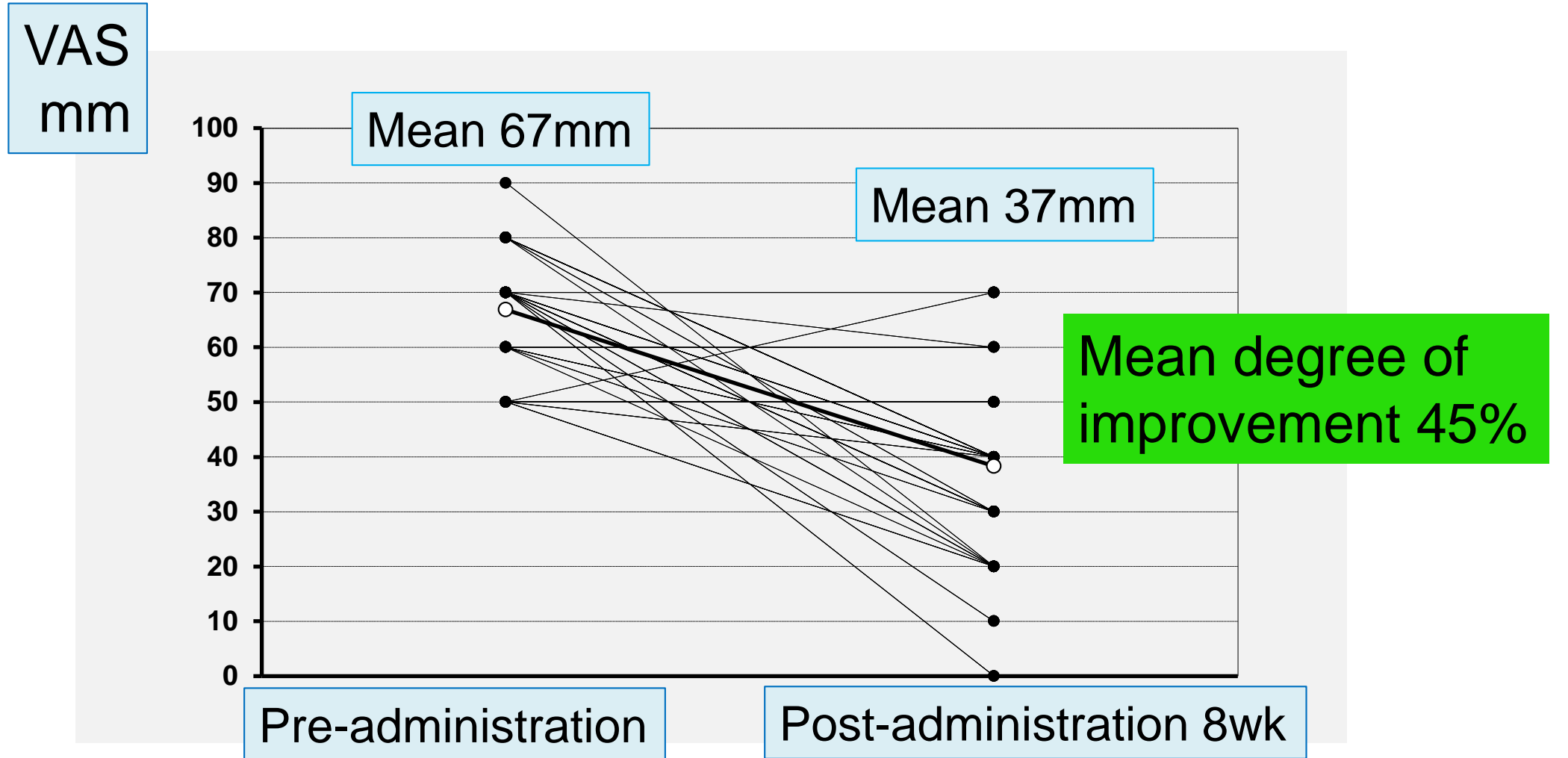
- Oral administration with duloxetine was begun starting at 20mg.
- Visual Analogue Scale (VAS) was examined at 1-3-week intervals.
- Increase to 60 mg once daily after 1-3 week.

- The lumbar spine were assessed by measuring the lumbar lordotic angle (L1-S1) as shown on a simple lateral radiograph.

- Investigation Item
 - 1) pre- and post-administration VAS.
 - 2) VAS of the 3 groups were compared.
 - 3) the correlation between lumbar lordotic angle and degree of VAS improvement.

RESULTS 1

Pre- and post-administration VAS



Statistically significant differences were noted in post-administration VAS ($P < 0.01$)

RESULTS 1 The Degree of VAS improvement

VAS improvement %	Cases
0-10	9
10-30	4
30-50	20
50以上	8

Treatment was effective in 78% (32/41) of cases, and a 50% or greater degree of VAS improvement, showing clear effectiveness in relieving pain, was seen in 20% of cases

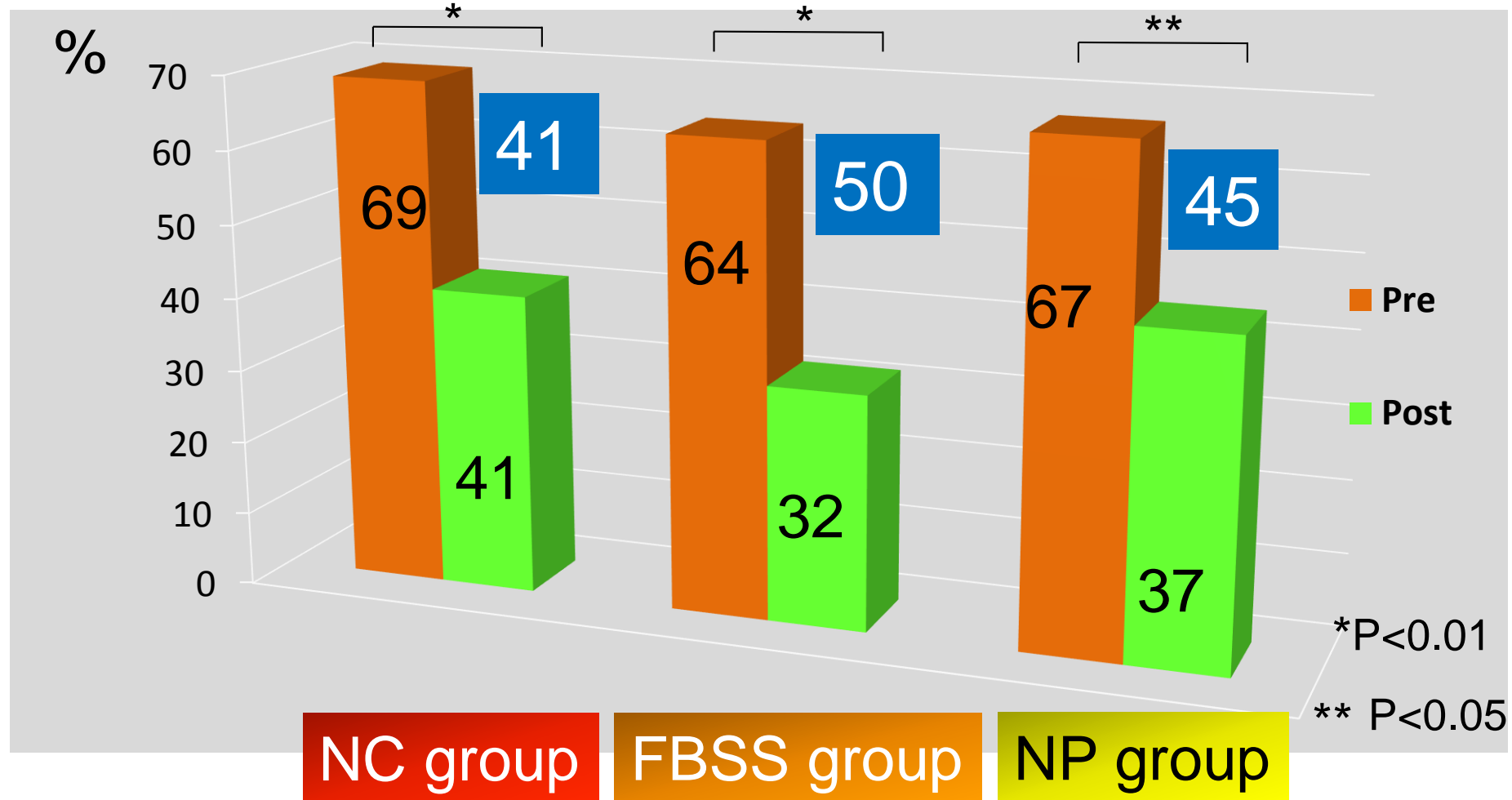
Not effective 22%
(9/41 cases)

Effective 78%
(32/41 cases)

Clear effective 20%

RESULTS 2

The degree of VAS improvement - 3 groups -



There was no statistically significant difference between the 3 groups ($P < 0.01$)

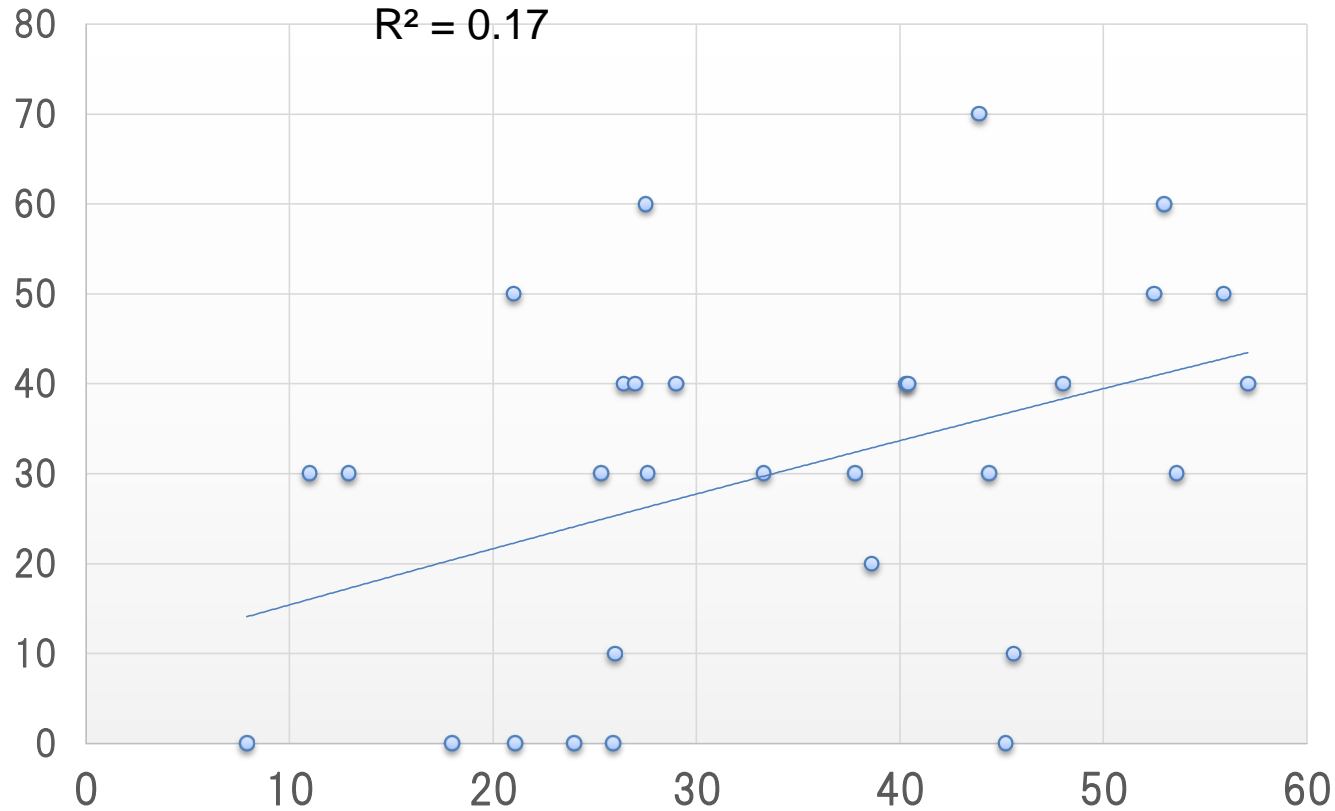
RESULTS 3

The correlation between lumbar lordotic angle and degree of VAS improvement

Degree of VAS improvement

n=41
r=0.44987
 $y = -0.00 x^2 + 0.65 x + 9.02$
 $R^2 = 0.17$

A statistically significant positive correlation was found between lumbar lordotic angle and degree of VAS improvement (P<0.01)



P<0.01

Lumbar lordotic angle

DISCUSSION 1

Previously Report: **Chronic Low Back Pain Patients**

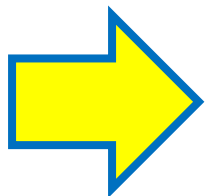
- Effectiveness of duloxetine 91.1-97.3%*

* Konno S, et al. A randomized, double-blind, placebo controlled phase III trial of duloxetine monotherapy in Japanese patients with chronic low back pain. Spine 2016

Hiroyuki Enomoto, et al. Assessment of direct analgesic effect of duloxetine for chronic low back pain : post hoc Path analysis of double-blind, placebo-controlled studies.. Journal of Pain Research 2017

This study: **Intractable pain due to spinal degenerative disease**

- Effectiveness of duloxetine 78%
- 50% or greater degree of VAS improvement 20%
- There was no statistically significant difference between the 3 groups

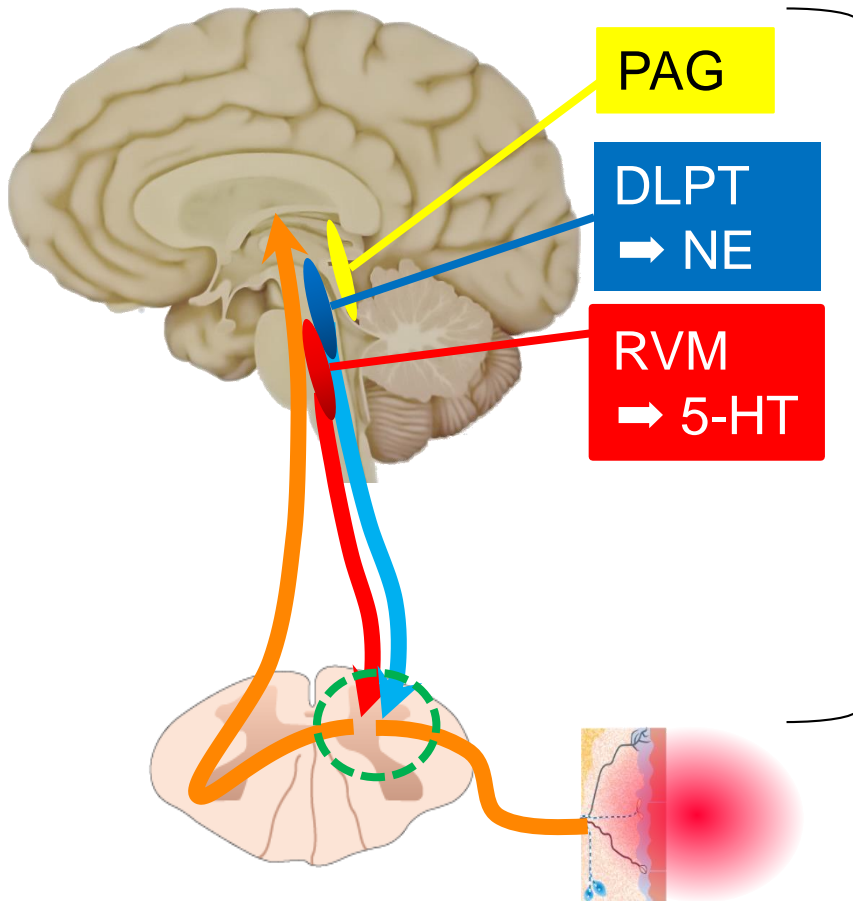


Previously Report 91.1-97.3%* > This study 78%

DISCUSSION 2

This study: Intractable pain due to spinal degenerative disease

- The degree of VAS improvement in FBSS group was 50% and was significantly higher the closer the patient's lumbar lordotic curvature was to normal.



Duloxetine is selective serotonin norepinephrine reuptake inhibitors that have been studied in peripheral neuropathic pain.

1st Correction surgery
or
Pharmacological management ?

2nd DLX
→ Recommendation for the drug given before surgery

CONCLUSIONS

- The main analgesic mechanism of action of DLX is activation of the descending pain inhibition pathway.
- The clinical assessment results suggested that DLX is satisfactorily effective for treating patients previously resistant to pharmacotherapeutic treatment.
- The degree of VAS improvement in FBSS group was 50% and was significantly higher the closer the patient's lumbar lordotic curvature was to normal.

Disclosure Declaration. None of the authors has any potential conflict of interest.