

# Therapeutic efficacy of pregabalin and greater occipital nerve block on cervicogenic headache -a case series-

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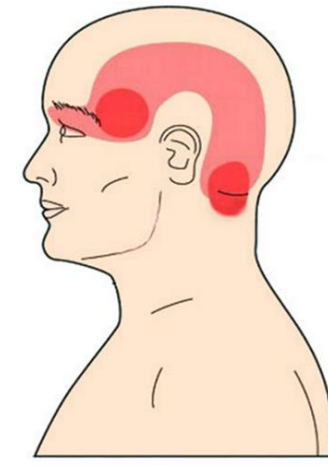


## Background

- Cervicogenic headache (CEH) is caused by cervical spine disorders that was first identified by Sjaastad in 1983<sup>1</sup>. The pathogenic mechanism of CEH is hypothesized to involve a convergence of the upper cervical afferents from the C1,2,3, spinal nerves and the trigeminal afferents in the trigeminocervical nucleus (trigeminocervical complex ;TCC) in the upper cervical cord<sup>2,3</sup>.
- Studies have characterized CEH as presenting with moderate-to-severe intensity in the occipital, frontal, temporal, and/or orbital regions.

## Treatment of cervicogenic headache

- Physical and manual therapy
- Pharmacological treatment
- Nerve block (great occipital nerve:GON, facet, cervical nerve roots)
- Surgery



- Although there are a variety of therapeutic approaches for CEH, no drugs has proven to be effective<sup>4</sup>. Multimodal approach is required for treatment of CEH<sup>2,4</sup>.
- As CEH does not improve over time in contrast to other secondary headache, a better choice of treatment is important<sup>5</sup>.
- A recent small size (N=34) RCT has reported that large amount of pregabalin (341mg/day) was effective for the patients with CEH and persistent headache attributed to whiplash<sup>6</sup>.
- With regard to nerve blocks, GON block is popular for CEH. However the scientific evidence of efficacy is limited as a great number of studies are small and non-controlled<sup>4</sup>.
- To the best of our knowledge, the multimodal approach of pregabalin and GON block have never addressed.

## Objective

To evaluate the therapeutic efficacy of pregabalin monotherapy (group C) and combination therapy with pregabalin and GON block (group P) on CEH retrospectively.

## Materials and Methods

- This study was approved by the Kameda-Daiichi Hospital Ethics Committee. In this single hospital-based retrospective study, we enrolled 8 patients who visited an outpatient pain clinic between September 2016 and March 2018 and were diagnosed CEH according to ICHD-3. All patients were introduced by spine surgeons to manage their pain.
- We analyzed headache duration, original neck disorders, headache character, headache location, previous therapy, and therapeutic efficacy.
- Headache intensity was assessed before and 2 weeks after the treatment using VAS.
- Therapeutic response was rated 4 grades: ①complete pain relief ②excellent (headache intensity decreases more than 50%) ③good (headache intensity decreases 21-50%) ④poor (headache intensity decreases less than 20%).
- ①pregabalin started from 25-50mg /day and increases dose until having therapeutic effects
- ②GON block mixture of 0.5 or 1% mepivacaine 2ml and dexamethasone 1.65mg
- Patients with a history of allergy to local anesthetic, coagulopathy, or patients who refused to participate were excluded from GON block.

## Results

### 1. Patients

Patients	8 ( M : F= 2 : 6)
Age ( years old )	67.6 ± 11.8 (46~81)
Mean headache duration	2.6 ± 3.2 years (2 months~10 years)
The presence of other headaches	0%(0/8)
Original cervical disorders	
upper cervical lesion	62.5% (5/8)
Atlantoaxial subluxation	2
C1/2 arthropathy	2
C2/3 arthropathy	1
middle-lower cervical lesion	37.5% (3/8)
Cervical spondylosis myelopathy	3

Characteristics of headache	dull, tightened	37.5% (3/8)
	shooting	25% (2/8)
	dull, tightened+shooting	25% (2/8)
	throbbing pain	12.5% (1/8)
Location of headache	occipital pain of affected side	100% (8/8)
	radiation to frontal	62.5% (5/8)
Neck pain		100% (8/8)
Previous therapy	NSAIDs	100% (8/8)
	Tramadol-acetaminophen combination	25% (2/8)

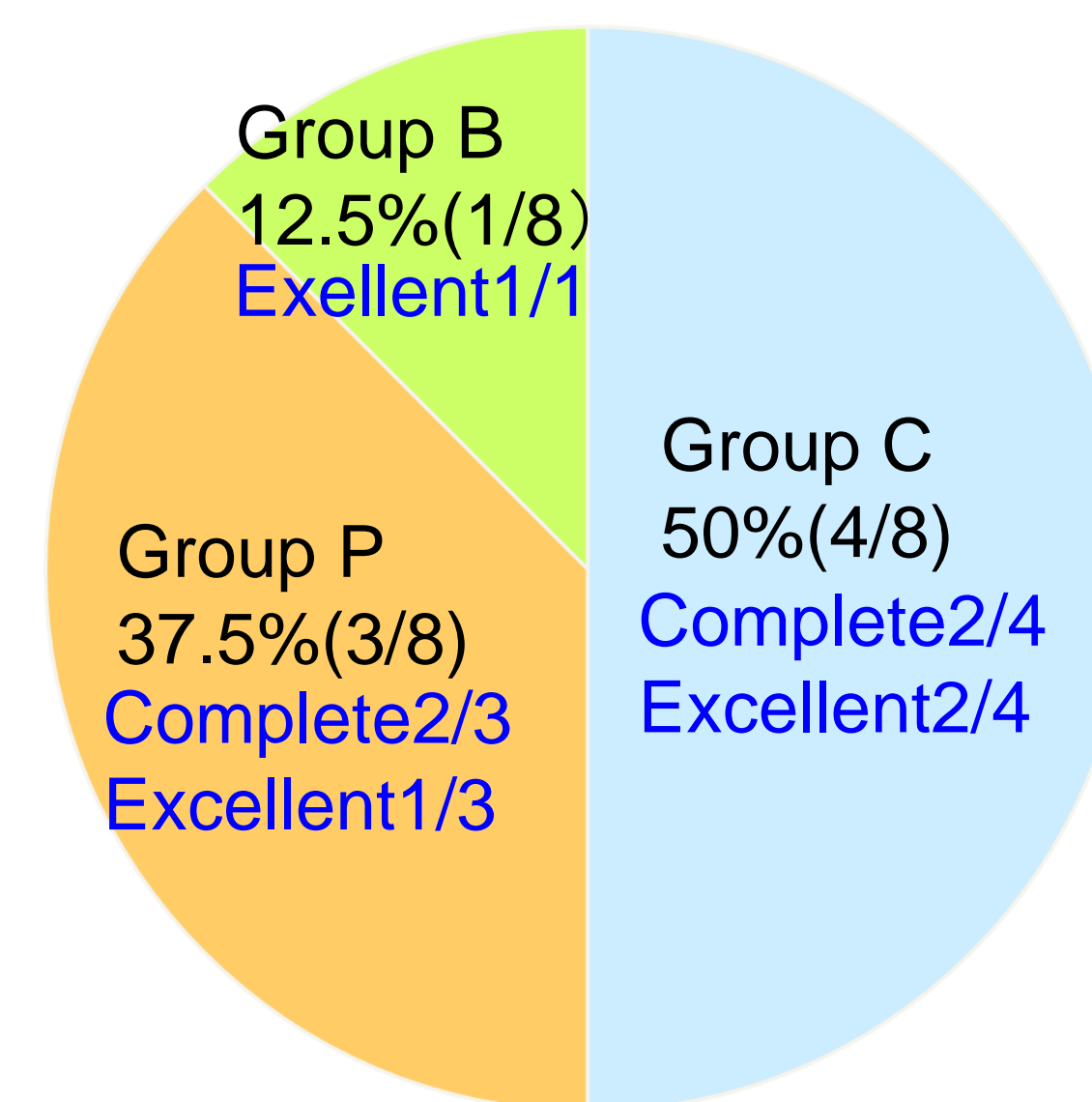
### 2. Therapeutic regimen

Group C (combination therapy)	50% (4/8)
Group P (pregabalin )	37.5% (3/8)
Group B(GON block )	12.5% (1/8)

A patient received a GON block because of a history of pregabalin adverse effects (dizziness).

### 3. Therapeutic effects

Complete pain relief	37.5% (3/8)
Excellent	62.5% (5/8)
Good	0% (0/8)
Poor	0% (0/8)



- CEH has been improved in all patients.
- There were no serious adverse effects.
- Although the therapeutic efficacy was similar between groups C and P, GON block could get an immediate pain relief.

### 4. The mean doses of pregabalin

Doses (mg/day)	all	Group C	Group P	P-value
Pregabalin	50.0 ± 14.4	43.8 ± 12.5	58.3 ± 14.4	0.21

There was not significant difference between groups C and P by t-test.

## Discussion

- Pregabalin is beneficial on the treatment of CEH. This study suggests that the mechanism of CEH may involve neuropathic pain associated with peripheral nerve injury<sup>6</sup>.
- A low dose of pregabalin was effective for CEH compared to a previous report (50 ± 14.4 mg/day vs 341.7 ± 121.3 mg/day)<sup>6</sup>. This finding is explained by the difference of racial variation and original cervical disorders (85% of patients in a previous report was persistent headache attributed to whiplash).
- There was no significant difference of therapeutic effects between pregabalin alone and the combination therapy with pregabalin and GON block. However, GON block is useful for the patients who need quick pain relief and could be one of good adjunctive therapies to fill the gap time before pregabalin works.

## Conclusions

- A low dose pregabalin is effective in patients with CEH who are resistant to NSAIDs and tramadol-acetaminophen combination.
- The therapeutic efficacy of combination therapy was not superior to the pregabalin monotherapy, although it is useful for the patients who need quick pain relief.

## References

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