

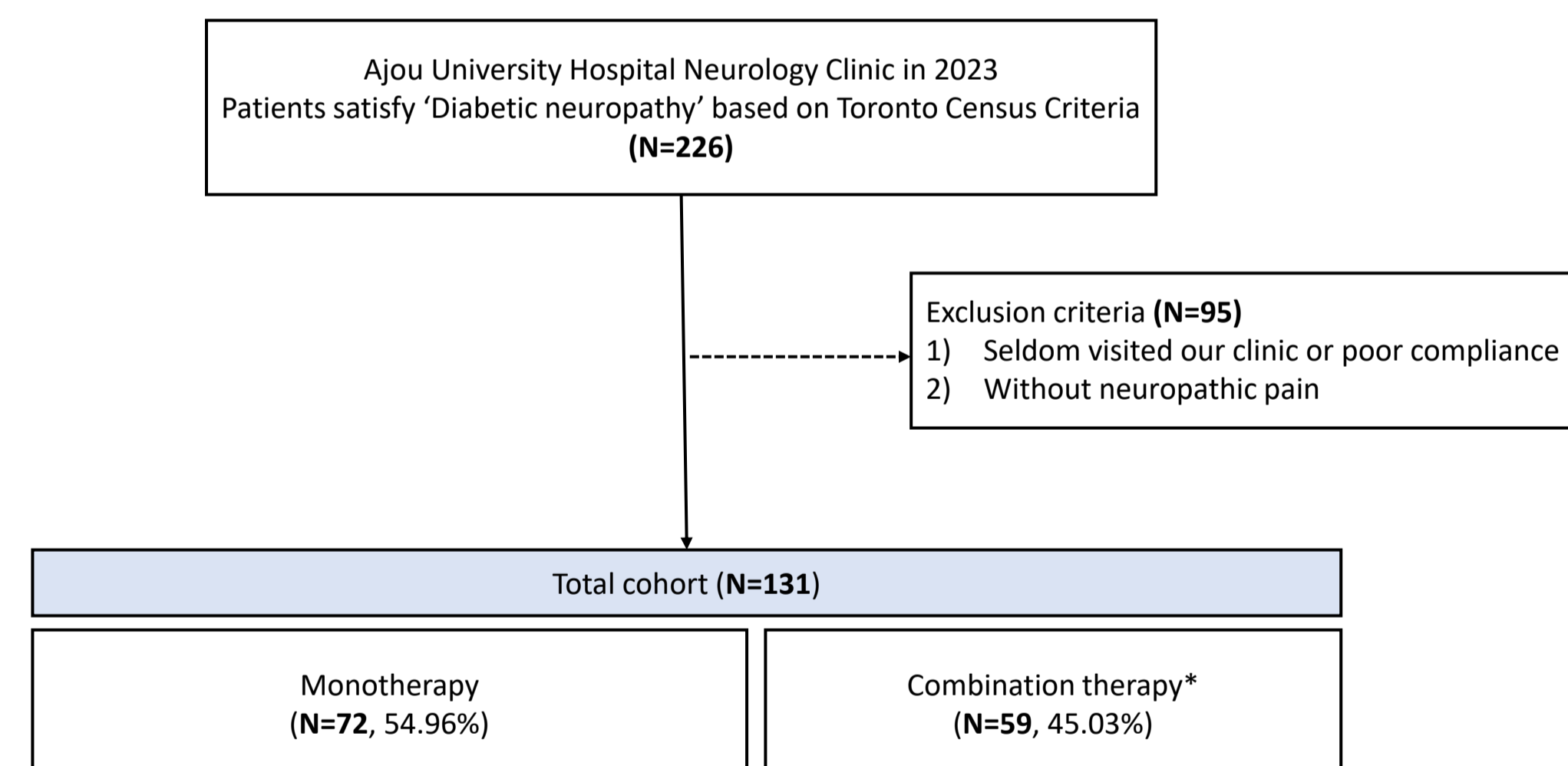
1 Background and aims

- Painful diabetic neuropathy (PDN) is one of the debilitating conditions in patients with long-standing diabetes. Untreated PDN can cause serious issues beyond pain, including emotional distress, sleep disturbance and impairment of quality of daily life.
- Although numerous guidelines have been proposed, real-world studies on whether these guidelines are adequately followed in managing uncontrolled diabetic neuropathic pain condition are rare.
- In this study, we aimed to determine whether patients with diabetic neuropathic pain at our hospital are being managed according to the currently proposed guidelines.

2 Materials and Methods

- A retrospective data analysis of patients who presented to Ajou University Hospital's neurology clinic
- From January to December 2023
- Presented with neuropathic pain who satisfy the condition 'confirmed diabetic peripheral neuropathy' based on Toronto Census criteria
- Data collection from the patients
 - Visual analog scale (VAS) before and after PDN medication
 - Glycated hemoglobin (HbA1c) levels at the first outpatient visit and current status
 - Type and dosage of the most recently used medication
- Pain improvement was defined as a decrease of ≥ 3 points in the VAS score from the initial value

3 Patient selection algorithm for PDN



*Combination were considered between gabapentinoids, TCAs, SNRIs and opioids

4 Demographics of patients with PDN

	PDN (N=131)
Age, years	62.2 ± 12.9
Sex, male (n, %)	94 (71.8)
Electrodiagnostic test results (n, %)	
Sensorimotor polyneuropathy	114 (87.0)
Sensory polyneuropathy	11 (8.4)
Multiple mononeuropathy	2 (1.5)
Small-fiber neuropathy	4 (3.1)
Duration of pain medication, months	49.99 ± 40.95
Quantitative sensory test (QST) abnormality (n=94) (n, %)*	79 (60.3)
Symptoms improvement	53 (40.5)
Changes of glycated hemoglobin (HbA1c)	-0.71 ± 1.91
Medication for neuropathic pain (n, %)	
Alpha-lipoic acid (Thioctic acid)	102 (77.9)
Gabapentin	19 (14.5)
Pregabalin	91 (69.5)
SNRIs	16 (12.2)
TCAs	10 (7.6)
Tramadol	49 (37.4)
Phenytoin	5 (3.8)
Benzodiazepine	8 (6.1)
Baclofen	2 (1.5)
Drug combination**	59 (45.0)

* QST abnormality was defined as abnormal warm or cold thresholds, or both, at the foot

**Combination were considered between gabapentinoids (G), TCAs (T) and SNRIs (S) and opioids (O), 40 patients for G+O, 8 patients for G+S, 4 patients for G+T, 2 patients for T+O and 5 patients for ≥ 3 agents combination

5 Medication doses used to PDN patients

Table 1. Medication doses used in patients with PDN

Medication	Dose (mg)
Alpha-lipoic acid (Thioctic acid) (n = 102)	600.0 ± 0.0
Gabapentin (n = 19)	611.8 ± 430.6
Pregabalin (n = 91)	182.6 ± 143.7
Duloxetine (n = 15)	50.0 ± 14.6
Amitriptyline (n = 4)	13.8 ± 7.5
Nortriptyline (n = 5)	14.0 ± 5.5
Tramadol (n = 49)	96.7 ± 63.6
Phenytoin (n = 5)	100.0 ± 0.0
Baclofen (n = 2)	12.5 ± 3.5
Clonazepam (n = 4)	0.44 ± 0.1
Diazepam (n = 4)	4.25 ± 1.5

Table 2. Comparison of drug dosage depending on the presence or absence of combination therapy

Medication	With Combination (mg) (n=59)	Without Combination (mg) (n=72)	P-value
Gabapentin	707.7 ± 476.9 (n=13)	404.2 ± 214.7 (n=6)	0.159
Pregabalin	231.1 ± 153.2 (n=45)	135.1 ± 117.0 (n=46)	0.001
Duloxetine	51.8 ± 14.0 (n=11)	45.0 ± 17.3 (n=4)	0.446
Nortriptyline	13.3 ± 5.8 (n=3)	15.0 ± 7.1 (n=2)	0.789
Tramadol	98.9 ± 65.6 (n=45)	71.9 ± 25.8 (n=4)	0.421

6 Conclusion

- Pregabalin was most commonly prescribed medication (69.5%) regardless of whether it is used in combination with other drugs.
- Although more than half of the patients didn't experience satisfactory symptom improvement, most of the drugs used in pain control were being administered at doses lower than those recommended by the guidelines.
- An improvement in the medication regimen is currently warranted for neuropathic pain management.