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Introduction

- **Treatment for Intractable pain**
 - ✓ The management of neuropathic pain in patients remains a challenge, as pain is often refractory to various pharmacological and interventional approaches.
 - ✓ Intrathecal morphine therapy has been utilized in an attempt to control such intractable pain.
- **Aim :** to evaluate the efficacy and safety of intrathecal morphine therapy for pain control in patients with intractable pain in patients with spinal cord injury (SCI) and complex regional pain syndrome (CRPS).



Methods

- **Design:** a single-center, retrospective study
- Between Oct 2019 and Nov 2023, SCI & CRPS patients admitted to the Department of Physical Medicine and Rehabilitation of JBUH.
- **Inclusion criteria:**
 - 1) experienced intractable pain for over six months with a VAS score of 7 or higher
 - 2) undergoing appropriate treatments, including high-dose morphine (200mg per day) or other narcotic analgesics
- **Intrathecal morphine injection (Trial)**
 - ✓ Patients were place in the lateral decubitus position.
 - ✓ Conducted under fluoroscopic guidance
 - ✓ Drainage of CSF in an amount corresponding to the dosage of morphine sulfate before injection
 - ✓ VAS for pain was evaluated before and after the procedure
 - ✓ Presence of any side effects was also assessed

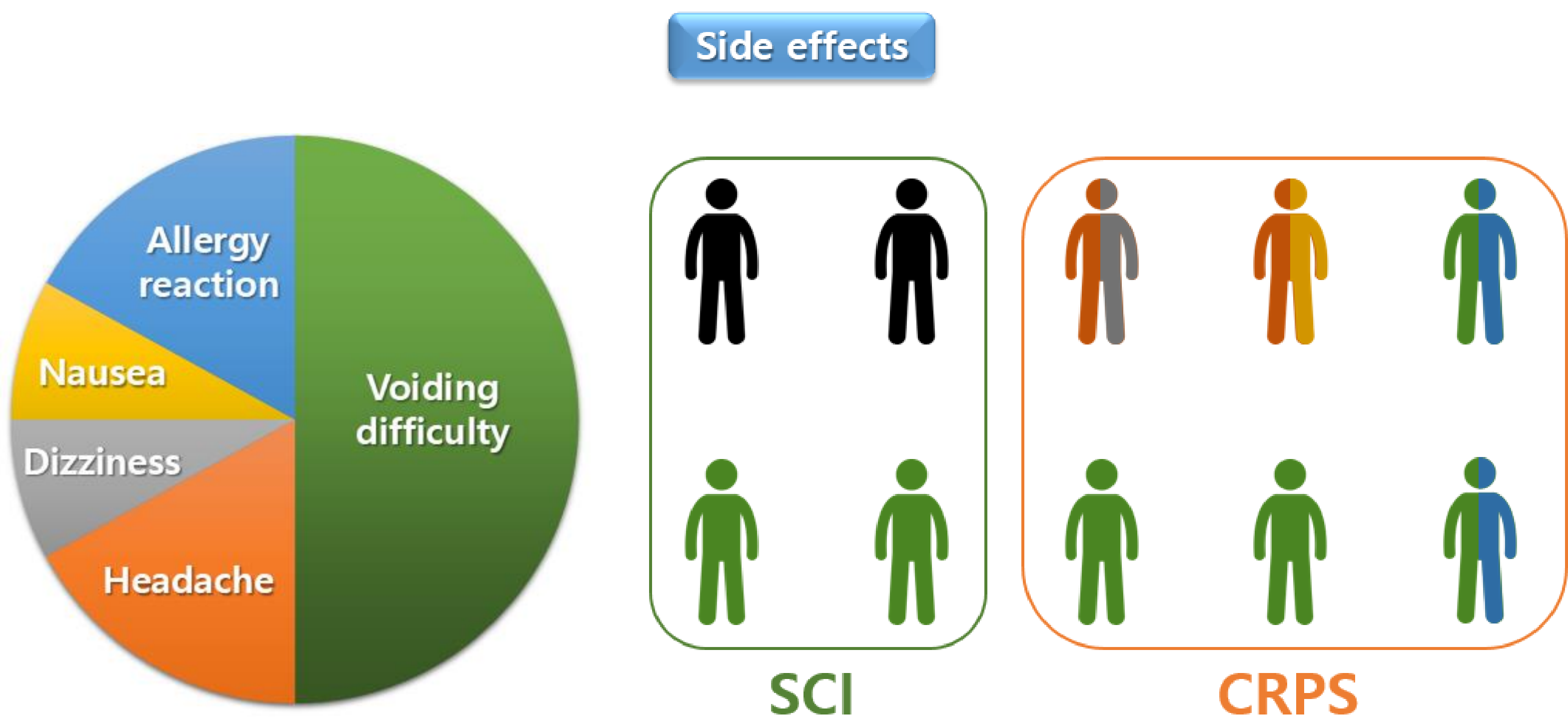
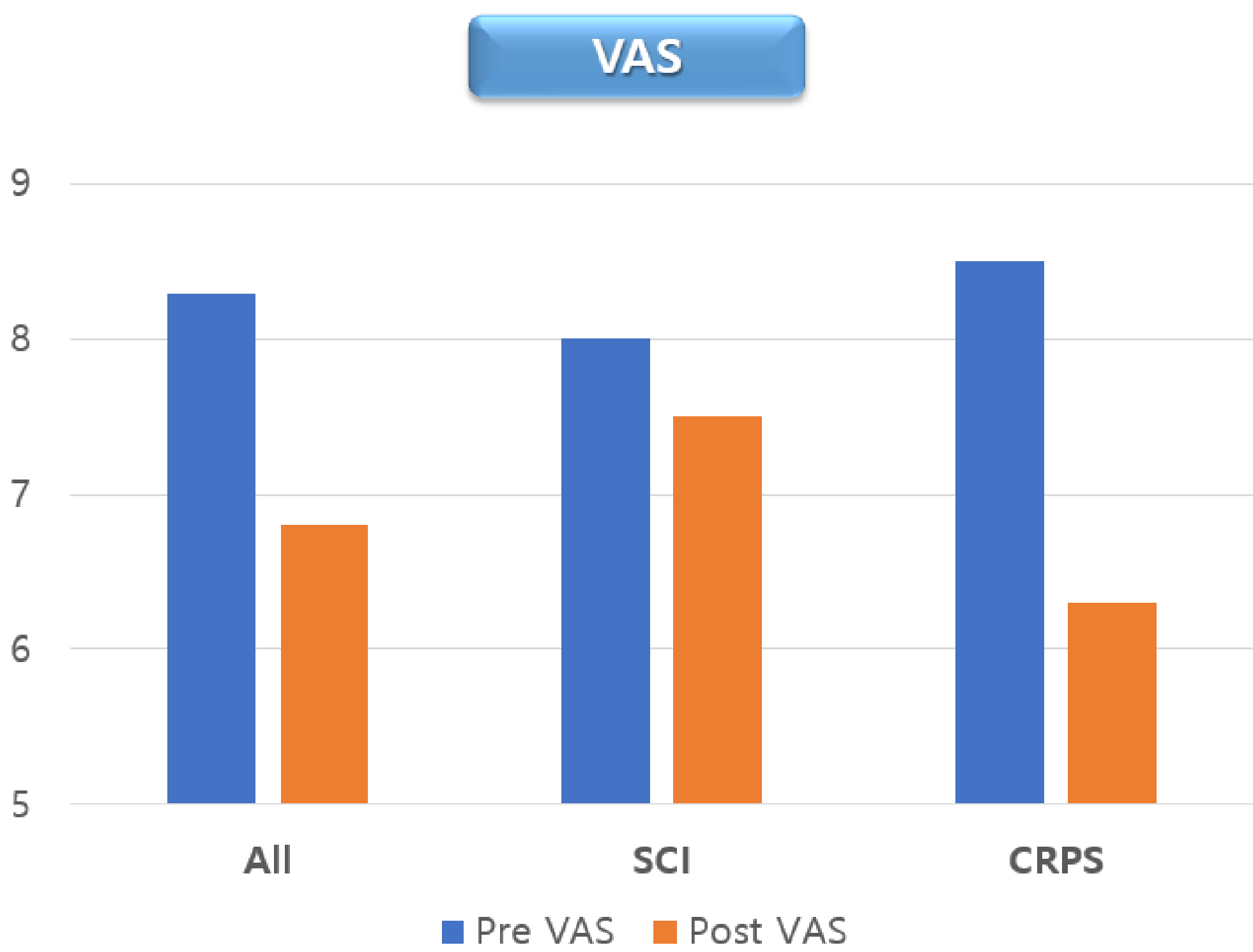


Results

Table.						
Number	Age	Sex	Diagnosis	Dosage	Effect	Side effect
1	61	F	CRPS (Left U/Ex)	2nd trial (0.3-0.2mg)	VAS 9 → 5	Voiding difficulty
2	25	M	CRPS (Neck & Back)	2nd trial (0.2-0.4mg)	VAS 8 → 4	Dizziness, Headache
3	35	F	CRPS (Right L/Ex)	1st trial (0.1mg)	None	Nausea, Headache
4	56	M	CRPS (Left L/Ex)	2nd trial (0.2-0.4mg)	VAS 8 → 6	Voiding difficulty, Allergic reaction
5	39	M	CRPS (Right L/Ex)	1st trial (0.25mg)	None	None
6	34	M	CRPS (Left U/Ex)	5th trial (0.3-0.2-0.5-0.75-0.8mg)	VAS 9 → 7	*
7	61	M	SCI - C4 ASIA D	3rd trial (0.3-0.8-1.2mg)	None	None
8	66	M	SCI - C4 ASIA D	2nd trial (0.25-0.25mg)	VAS 9 → 7	Voiding difficulty
9	51	M	SCI - T10 ASIA D	2nd trial (0.2-0.4mg)	None	Voiding difficulty
10	59	M	SCI - T8 ASIA A	2nd trial (0.2-0.5mg)	VAS 7 → 6	Voiding difficulty, Allergic reaction

SCI ASIA : Spinal cord injury, American spinal cord injury association impairment scale CRPS : Complex regional pain syndrome, U/Ex : Upper extremity, L/Ex : Lower extremity, VAS : Visual analog scale, * : In the initial trial, the patient experienced voiding difficulty, but after preemptively draining the same volume of CSF as the intrathecal injection volume for subsequent treatments, voiding difficulties were no longer reported.

- A total of 10 patients were included
 - consisting of 4 patients with SCI and 6 patients with CRPS
- **Comparison of the visual analog scale** (Pre → Post)
 - ✓ All patients : 8.3 → 6.8
 - ✓ SCI group : 8.0 → 7.5
 - ✓ CRPS group : 8.5 → 6.3
 - ✓ The patient with the most significant change was a CRPS patient whose VAS decreased from 9 to 5.
- **Side effects**
 - ✓ Among the 10 patients, 8 experienced side effects.
 - ✓ Voiding difficulty was the most commonly reported complaint (50%)
 - ✓ Followed by headache and alngelergic reactions at 17% each, and dizziness and nausea at 8% each.
- One CRPS patient experienced voiding difficulty after the initial injection. But starting from the subsequent trial, administering morphine after draining 0.5ml of CSF resulted in pain reduction without any observed side effects.
- ✓ Another CRPS patient, despite undergoing the same procedure of draining CSF before morphine injection, did not experience a resolution of side effects.



Conclusion

- Intrathecal morphine therapy, while associated with a relatively high incidence of side effects, may offer potential benefits for managing refractory pain.
- This study revealed voiding difficulty as a significant side effect in ITDD morphine trials, observed in 6 out of 10 patients.
- Notably, preemptive CSF drainage alleviated this issue in one case, suggesting voiding difficulties could arise from minor CSF pressure increases due to ITDD injections or morphine's drug related side effects.