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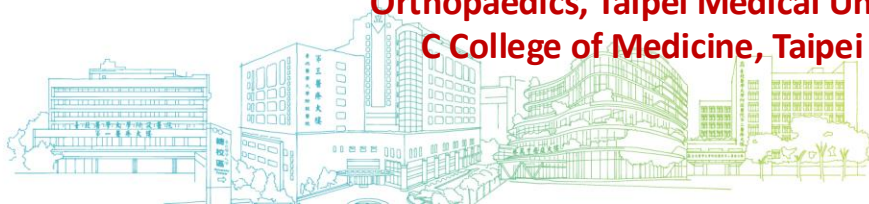
An Extended-Release Sebacoyl Dinalbuphine Ester for Perioperative Pain Management in Improving Enhanced Recovery After Surgery in Total Knee Arthroplasty

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Trust, Moral, Universal, Hand in Hand

FACULTY DISCLOSURE

TMUH



- The author has no relevant financial relationships or conflicts of interest to disclose.



- Increase in orthopedic surgeries, especially TKR, in aging populations.
- Sebacoil dinalbuphine ester (Dinalbuphine Sebacate, DS) is a long-acting injectable formulation of nalbuphine, a mixed κ -opioid receptor agonist and μ -opioid receptor antagonist. It has been shown to provide sustained analgesia with a lower risk of respiratory depression and reduced incidence of opioid-related side effects.
- DS has demonstrated efficacy in managing both acute and chronic postoperative pain and is increasingly considered a valuable component in multimodal analgesia regimens.
- Study Focus: Assess the impact of dinalbuphine sebacate (DS) with/without parecoxib on pain management in TKA.



- Retrospective study (Jan 2018 - May 2024).
- 115 patients who underwent TKA.
- Groups: DS only (81 patients) vs. DS + Parecoxib (34 patients).
- Pain measured via Visual Analog Scale (VAS) over 96 hours post-operation.
- Analgesic consumption analyzed.

Patient Characteristics



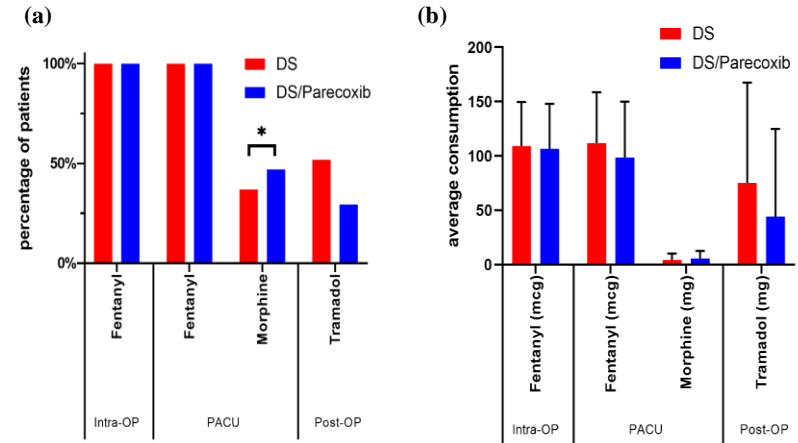
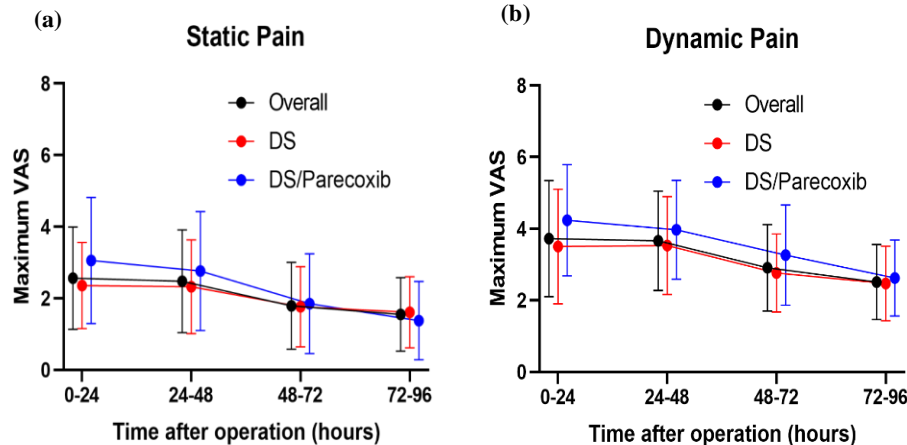
	DS	DS+ parecoxib
	N=81	N=34
Gender (male/female)		
male	18(22.2%)	6(17.6%)
female	63(77.8%)	28(82.4%)
Age	72.0 (7.1)	73.5(7.3)
BMI	27.4(4.2)	27.1(4.1)
Knee		
Left	34(42%)	10(29%)
Right	47(58%)	24(71%)
ASA		
II	62(76.5%)	24(70.5%)
III	19(23.5%)	10(29.5%)
Duration of surgery (min)	122.8(26.7)	126.4(16.6)
Length of hospital stay (days)	6.5(3.8)	6.5(1.6)

•No significant differences between groups.

Results

- **Pain Scores:**

- Maximum visual pain scores for static and dynamic pain over 4 days.
- DS group reported lower pain scores on Day 1 (Static: 2.36 vs 3.05, Dynamic: 3.51 vs 4.24; $p < 0.05$).
- No significant differences on days 2, 3, and 4.



Cross-group analysis of pain scores

Results (cont.)

- **Oral Analgesics Consumption:**

- Average consumption per person for Acetaminophen, Ultraphen, Meloxicam, and Etoricoxib.
- Etoricoxib consumption significantly higher in DS + Parecoxib group (763.6 mg vs. 500.9 mg, $p = 0.02$).

	DS	DS/parecoxib	P
	N=81	N=34	
Acetaminophen			
Percentage of patients	43(53.1%)	15(44.1%)	
Average consumption (mg)	4186.0 (3164)	5454.5(3420)	0.22
Ultraphen			
Percentage of patients	62(76.5%)	26(76.5%)	
Average consumption (mg)	3367.7(1964.3)	4294.2(2086.2)	0.059
Meloxicam			
Percentage of patients	9(11.1%)	4(11.8%)	
Average consumption (mg)	26.7(16.7)	37.5(18.4)	0.359
Etoricoxib			
Percentage of patients	23(28.4%)	11(32.4%)	
Average consumption (mg)	500.9(323.6)	763.6(267.2)	0.020



- Parecoxib may reduce the need for Tramadol but doesn't significantly impact overall pain scores.
- **Dinalbuphine Sebacate (DS)**, as a long-acting opioid with κ -agonist and μ -antagonist properties, has shown to provide stable and sustained postoperative pain relief.
- In this study, the DS-only group achieved comparable—if not better—pain control in the first 24 hours compared to the DS + Parecoxib group, suggesting that DS alone may be sufficient for early-stage postoperative analgesia.

Limitations

- **Self-reported pain scores:** Pain perception is subjective and may vary due to individual thresholds and reporting accuracy.
- **Imbalance in baseline pain sensitivity:** The DS + Parecoxib group exhibited higher initial pain scores, suggesting inherently more pain-sensitive patients, possibly skewing results.
- **Variation in dynamic pain assessment:** Movement-induced pain was not standardized, and different patient actions could result in inconsistent measurements.



- **Preoperative DS provides effective analgesia.**
- **Postoperative Parecoxib may reduce Tramadol reliance but shows no significant impact on pain scores.**
- **Future Studies: Multicenter study needed for more robust evidence.**

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