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EFFICACY OF I.V INDOMETHACIN VS NALBIN AS RESCUE ANALGESIA IN SEVERE INTRACTABLE RENAL COLIC

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Abstract

Background: *Severe renal colic that fails to respond to standard intravenous (IV) analgesics often prompts urgent ureteric stenting. A reliable pharmacological rescue could prevent this invasive intervention.*

Objective: *To compare the effectiveness of IV indomethacin (Liometacen) and IV nalbuphine (Nalbin) in managing refractory renal colic and their ability to avoid emergency stenting.*

Methods: *Over 13 months (January 2022–January 2023), 168 patients with severe renal colic unrelieved by diclofenac, ketorolac, or tramadol were treated with either Liometacen (n=84) or Nalbin (n=84). Pain scores were measured using the Visual Analog Scale (VAS) before and 30 minutes after administration. The need for further analgesia and emergency stenting was recorded.*

Results: *Mean pain reduction was 6.8 (95% CI: 6.54–7.06) for Liometacen and 6.7 (95% CI: 6.43–6.97) for Nalbin (p=0.74). Rescue analgesia was required in 5% and 6% of cases respectively. No patient in either group required urgent ureteric stenting.*

Conclusion: *Liometacen and Nalbin are equally effective as final-line rescue analgesics, eliminating the need for emergency stenting in refractory renal colic.*

INTRODUCTION

Renal colic is among the most intense acute pains encountered in emergency practice. While most patients respond to non-steroidal anti-inflammatory drugs (NSAIDs) or weak opioids, a subset remain in distress despite these measures. In such cases, urgent ureteric stenting is often performed — effective but invasive, with procedural risks and cost implications. Indomethacin, a potent NSAID, and nalbuphine, a mixed kappa-agonist/mu-antagonist opioid, are both used for acute pain relief but have not been directly compared as rescue agents in refractory renal colic. This study aimed to determine whether either drug is superior, or whether they can be considered equally effective alternatives.

Methods

Design and Setting

Prospective comparative study conducted at a tertiary emergency department from January 2022 to January 2023.

Eligibility Criteria

Inclusion: Adults aged 18–65 years, CT-confirmed ureteric stones, VAS ≥ 7 despite at least one NSAID and one weak opioid.

Exclusion: Known allergy to study drugs, hemodynamic instability, requirement for immediate surgery, chronic opioid use.

Interventions

Liometacen group: IV indomethacin 50 mg over 5 minutes (n=84).
Nalbin group: IV nalbuphine 10 mg over 5 minutes (n=84).

Outcome Measures
1. Mean reduction in VAS score at 30 minutes.
2. Requirement for additional rescue analgesia within 2 hours.
3. Avoidance of urgent ureteric stenting.

Sample Size Calculation
Assuming a standard deviation (σ) of 1.25 in pain reduction and a minimum clinically significant difference (Δ) of 0.5 VAS points, with α=0.05 and power=80%, the required sample was 78 per group. To compensate for dropouts, 84 per group were enrolled.

Statistical Analysis
Continuous data were analyzed using independent t-tests; categorical variables were compared with chi-square tests. A p-value <0.05 was considered significant.

Results
Baseline Characteristics
Groups were comparable in age, sex distribution, and baseline VAS scores.

Table 1 – Pain Relief and Clinical Outcomes

Outcome	Liometacen (n=84)	Nalbin (n=84)	p-value
Baseline VAS	9.2 ± 0.9	9.1 ± 1.0	0.52
VAS after 30 min	2.4 ± 1.0	2.4 ± 1.1	0.97
Mean Pain Reduction	6.8 ± 1.2	6.7 ± 1.3	0.74
Rescue Analgesia Required	5%	6%	0.79
Avoided Urgent Stenting	100%	100%	—

Key Findings
Both drugs produced similar, substantial pain relief (~6.8 VAS points).
Only a small fraction required further analgesia (5–6%).
No patient in either group required urgent stenting.

Discussion
Both IV indomethacin and IV nalbuphine provided rapid, substantial pain relief in patients with severe renal colic unresponsive to standard therapy. Importantly, neither group required urgent stenting — a major benefit in terms of patient safety and healthcare resource use.
The nearly identical mean reductions in pain and overlapping confidence intervals indicate no meaningful clinical difference between the two drugs. This finding allows clinicians flexibility in drug choice, guided by availability, patient comorbidities, and potential contraindications.

Strengths
Focused on a critical rescue scenario.
Adequate sample size with clear statistical methodology.
Objective, standardized outcome measures.

Limitations
Non-randomized design.
Single-center study.
Short follow-up period, limited to the acute episode.

Conclusion
In severe renal colic unresponsive to first-line IV analgesics, both Liometacen and Nalbin are equally effective rescue drugs. Their use can reliably avoid urgent ureteric stenting, offering a safe, efficient alternative in emergency care.

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