IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 25, Issue 5 Ser. 4 (May. 2026), PP 19-24
www.iosrjournals.org

Pre-Emptive Use Of Oral Flupirtine In Patients Undergoing Total Abdominal Hysterectomy Under Subarachnoid Block: A Case Series

Dr. Akshay Ekbote
Dr. Vinod Hosalli
Dr. Suraj K. P

Abstract
Objective
This case series evaluates the efficacy and safety of pre-emptive oral flupirtine for postoperative analgesia in patients undergoing total abdominal hysterectomy (TAH) under subarachnoid block (SAB).
Methods
Ten female patients aged 18–55 years scheduled for elective TAH under SAB received a single oral dose of flupirtine 100 mg approximately one hour before surgery. Pain intensity was assessed using the Visual Analog Scale (VAS) at 2, 6, 12, and 24 hours postoperatively. Rescue analgesia (IV tramadol 50 mg) was administered when VAS ≥ 4. Time to first rescue analgesia and total tramadol consumption within 24 hours were recorded. Patients were monitored for adverse events such as sedation, nausea, vomiting, and dizziness.
Results
Postoperative pain scores remained consistently low (VAS range: 1–3), with a mean time to first rescue analgesia of approximately 3.4 hours. All patients required only one dose of rescue analgesia within 24 hours. No patient reported severe pain (VAS > 4), and no adverse effects related to flupirtine were observed, including sedation, nausea, or vomiting. Hemodynamic stability was maintained intraoperatively, and the opioid-sparing effect of flupirtine was evident as tramadol consumption remained minimal.
Conclusion
Pre-emptive oral flupirtine (100 mg) administered before TAH under SAB effectively reduces postoperative pain and delays the requirement for rescue analgesia. It also reduces opioid consumption without causing significant side effects. These findings suggest that flupirtine is a promising adjunct in the management of postoperative pain following TAH; however, larger controlled studies are needed to confirm these results.
Keywords: *Total abdominal hysterectomy, pre-emptive analgesia, flupirtine*

Date of Submission: 19-05-2026 Date of Acceptance: 29-05-2026

I. Introduction

Total abdominal hysterectomy (TAH) is one of the most commonly performed gynecological surgeries worldwide for benign and malignant uterine conditions. Postoperative pain following TAH is often moderate to severe, and inadequate pain control may result in delayed recovery, prolonged hospital stay, and reduced patient satisfaction. Subarachnoid block (SAB) using local anesthetics such as bupivacaine is widely employed for TAH because it provides reliable intraoperative anesthesia and early postoperative analgesia.

However, SAB alone may not provide adequate postoperative pain relief beyond the first few hours, necessitating supplemental analgesics such as opioids or non-steroidal anti-inflammatory drugs (NSAIDs). Although opioids are effective analgesics, they are associated with adverse effects such as respiratory depression, nausea, vomiting, and sedation, which can impede postoperative recovery.[4]

Pre-emptive analgesia involves administering analgesic agents before surgical incision to reduce postoperative pain by attenuating central sensitization.[14] Flupirtine is a unique non-opioid analgesic possessing analgesic, muscle relaxant, and neuroprotective properties.[1] Its mechanism of action involves selective neuronal potassium channel opening and indirect antagonism of N-methyl-D-aspartate (NMDA) receptors, thereby reducing neuronal excitability and central sensitization.[12,13]

Although flupirtine has been evaluated in various perioperative and chronic pain settings, its role as a pre-emptive analgesic in gynecological surgeries, particularly TAH under SAB, remains inadequately explored.[3,6,10] This case series was therefore undertaken to evaluate the analgesic efficacy and safety profile of preoperative oral flupirtine in patients undergoing TAH under SAB.

II. Methods

Study Design and Setting

This prospective case series was conducted at a tertiary care teaching hospital. Female patients aged 18–55 years belonging to American Society of Anesthesiologists (ASA) physical status I or II and scheduled for elective total abdominal hysterectomy under subarachnoid block were included.

Patients with chronic pain disorders, regular opioid or analgesic use, known hypersensitivity to flupirtine, hepatic or renal dysfunction, contraindications to spinal anesthesia, neurological or psychiatric disorders affecting pain reporting, pregnancy, lactation, or concurrent medications interacting with flupirtine were excluded.

All patients received a single oral dose of flupirtine 100 mg approximately one hour before surgery with small sips of water.

In the operating room, standard monitoring including electrocardiography, non-invasive blood pressure, and pulse oximetry was instituted, and intravenous access was secured. SAB was performed at the L3–L4 interspace using a 25G Quincke spinal needle. After confirmation of free cerebrospinal fluid flow, 0.5% hyperbaric bupivacaine was administered intrathecally. Sensory blockade was assessed using the pinprick method, while motor blockade was assessed using the Bromage scale.

Postoperative pain was evaluated using the Visual Analog Scale (VAS; 0 = no pain and 10 = worst imaginable pain) at 2, 6, 12, and 24 hours after surgery. Rescue analgesia consisting of intravenous tramadol 50 mg was administered when VAS ≥ 4. Time to first rescue analgesia and total tramadol consumption during the first 24 hours were documented.

Patients were also monitored for adverse effects such as sedation (Ramsay Sedation Scale), nausea, vomiting, dizziness, and respiratory depression.

III. Results

Table 1: Age Distribution of Patients

Age Group (Years)	Frequency (n=10)	Percentage (%)
31–40	4	40%
41–50	6	60%
Total	**10**	**100%**

The majority of the study population falls within the 41–50 year age bracket, accounting for 60% of the cases. The remaining 40% of patients are aged between 31 and 40 years, indicating a middle-aged distribution for the procedures.

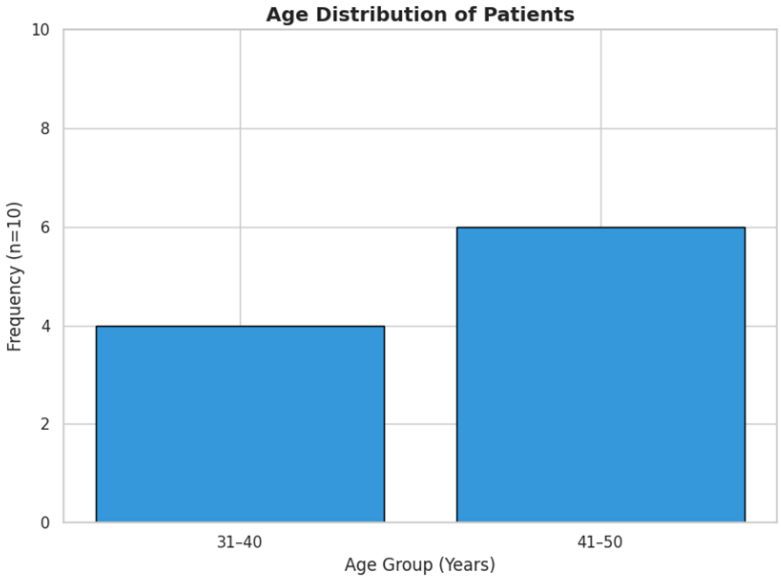


Figure 1: Age Distribution of Patients

Table 2: ASA Physical Status

ASA Physical Status	Frequency (n=10)	Percentage (%)
ASA I	6	60%
ASA II	4	40%
Total	**10**	**100%**

The distribution shows that 60% of the subjects are ASA I, while 40% have mild systemic conditions ASA II. This reflects a study group that is generally fit for surgery with minimal pre-existing health risks.

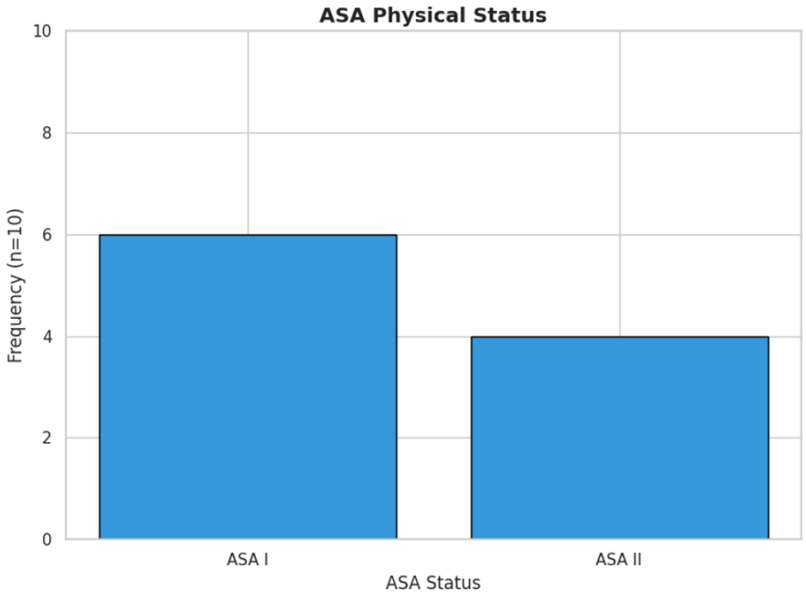


Table 3: Mean Postoperative VAS Scores

Time Interval	Mean VAS Score	Standard Deviation (±SD)
2 Hours	2.10	0.74
6 Hours	2.70	0.48
12 Hours	2.60	0.52
24 Hours	2.30	0.48

Postoperative pain remained well-controlled throughout the first 24 hours, with mean VAS scores peaking slightly at 6 hours (2.70 ± 0.48). All mean scores stayed below 3.0, indicating that the analgesic protocol effectively maintained pain at a mild, manageable level

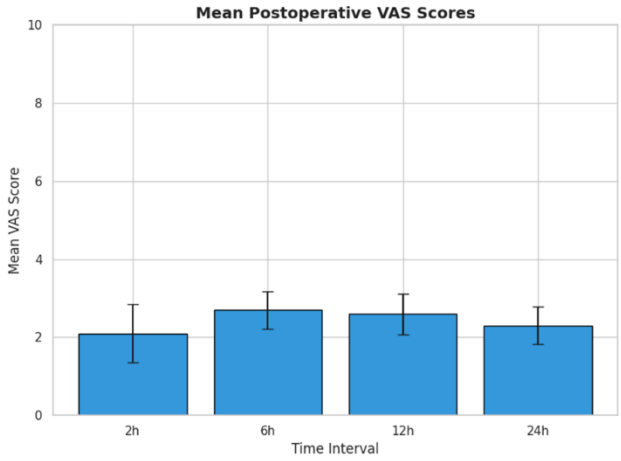


Figure 3: Mean Post Op Vas Scoring

Table 4: Time to First Rescue Analgesia

Time Interval	Frequency (n=10)	Percentage (%)
0 Hours	0	0%
2 Hours	5	50%
4 Hours	3	30%
6 Hours	2	20%
12 Hours	0	0%
24 Hours	0	0%
Mean Time	**3.4 Hours**	**± 1.51 SD**

The mean time to first rescue analgesia request was 3.4 ± 1.51 hours. Half of the patient cohort (50%) requested rescue analgesia at the 2-hour assessment interval as the spinal blockade began to recede, while the remaining 50% of patients successfully extended their pain relief, requiring intervention at 4 hours (30%) or 6 hours (20%) postoperatively.

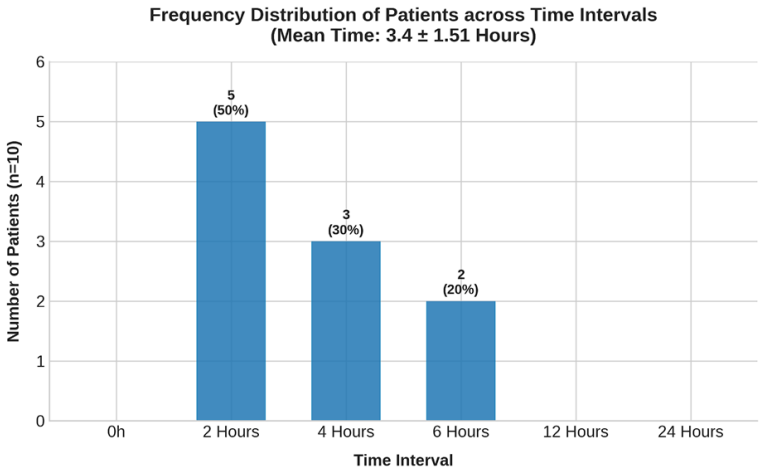
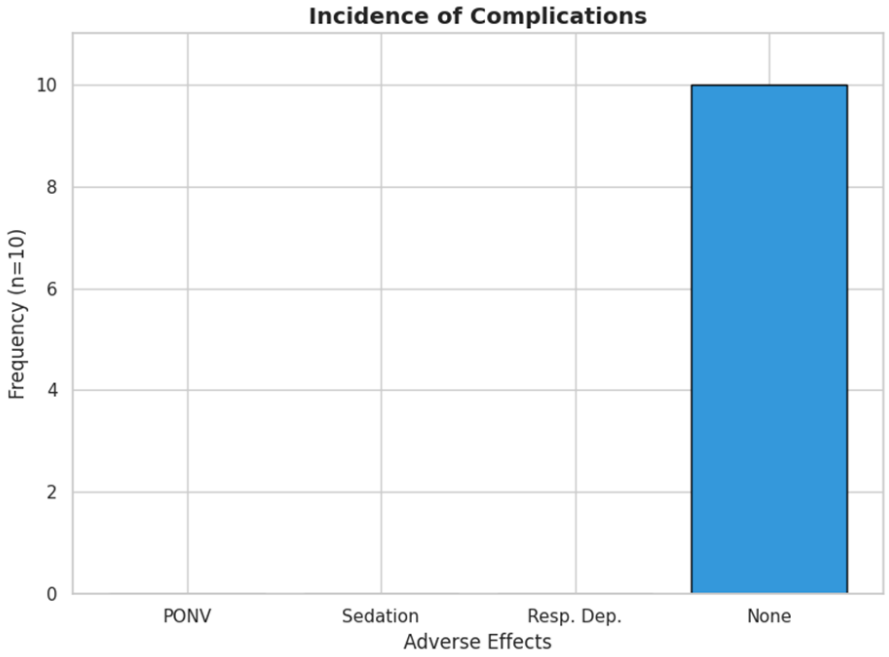


Table 5: Incidence of Complications / Adverse Effects

Adverse Effects	Frequency (n=10)	Percentage (%)
Postoperative Nausea & Vomiting (PONV)	0	0%
Sedation	0	0%
Respiratory Depression	0	0%
None	10	100%



IV. Discussion

The study population predominantly consisted of middle-aged women, with 60% belonging to the 41–50 year age group and 40% in the 31–40 year age group. This demographic distribution is clinically relevant because TAH is commonly performed in this age bracket for benign uterine conditions. Similar age groups and ASA I–II patient profiles have been included in previous studies evaluating flupirtine in perioperative analgesia.[3,6,8,10]

The ASA physical status distribution in our study (60% ASA I and 40% ASA II) indicates a relatively healthy cohort with minimal systemic disease, thereby reducing confounding factors that may influence pain perception or analgesic metabolism.

An important finding of the present study was the consistently low postoperative VAS scores over the first 24 hours following surgery. Mean pain scores remained below 3 at all measured intervals, indicating that patients experienced only mild postoperative pain despite undergoing major abdominal surgery. These findings suggest that pre-emptive oral flupirtine provided satisfactory postoperative analgesia.

The mean time to first rescue analgesia was 3.4 ± 1.51 hours. Half of the patients required rescue analgesia at the 2-hour interval as the spinal block regressed, whereas the remaining patients required analgesia at 4 or 6 hours postoperatively. This suggests that flupirtine contributed to prolongation of postoperative pain relief beyond the duration of spinal anesthesia.

Yadav et al.[8] demonstrated significantly lower postoperative pain scores in patients undergoing laparoscopic cholecystectomy who received preoperative flupirtine, with a mean VAS score of 2.10 ± 0.61 at 2 hours postoperatively. Similarly, Thapa et al.[6] reported reduced postoperative opioid requirements in patients undergoing TAH who received preoperative flupirtine. Our findings are consistent with these observations and further support the opioid-sparing effect of flupirtine.

No significant adverse effects such as sedation, postoperative nausea and vomiting, or respiratory depression were observed in this study. This favorable safety profile is consistent with previous literature evaluating flupirtine in perioperative settings.[5,9,12]

V. Conclusion

Pre-emptive oral flupirtine 100 mg administered before total abdominal hysterectomy under subarachnoid block appears to be an effective and safe adjunct for postoperative analgesia. It prolongs the time to first rescue analgesia, reduces opioid consumption, maintains low postoperative pain scores, and is not associated with significant adverse effects. Larger randomized controlled studies are warranted to validate these findings and optimize dosing strategies.

Conflicts of Interest

There are no conflicts of interest.

Financial Support

Nil.

References

[1]. Meyer TA, Schöberl T, Et Al. Flupirtine: Pharmacology And Therapeutic Potential. Drugs. 1997;54(3):413-422.
[2]. Reyes-García G, Lezama-Muñiz C, Et Al. Preemptive Analgesia In Abdominal Hysterectomy: A Randomized Controlled Trial. J Pain Res. 2018;11:2639-2647.
[3]. Kumar S, Kaushal S, Et Al. Preemptive Analgesic Effect Of Flupirtine In Minor Gynecological Surgeries: A Randomized Controlled Trial. Indian J Anaesth. 2017;61(1):28-33.
[4]. Dahan A, Aarts L, Smith TW. Incidence, Reversal, And Prevention Of Opioid-Induced Respiratory Depression. Anesthesiology. 2010;112(1):226-238.
[5]. Fisher DM, Rooke GA. Use Of Flupirtine In Postoperative Pain Management: A Review. Anesth Analg. 1994;79(1):11-16.
[6]. Thapa D, Et Al. Effect Of Preoperative Flupirtine On Postoperative Morphine Sparing In Patients Undergoing Total Abdominal Hysterectomy. Saudi J Anaesth. 2016;10(1):4-8.
[7]. Dey S, Et Al. Efficacy Of Flupirtine For Postoperative Pain: A Systematic Review And Meta-Analysis. Indian J Anaesth. 2023;67(3):248-255.
[8]. Yadav G, Et Al. Role Of Flupirtine As A Preemptive Analgesic In Patients Undergoing Laparoscopic Cholecystectomy. J Anaesthesiol Clin Pharmacol. 2015;31(2):169-173.
[9]. Singhal V, Et Al. Comparative Evaluation Of Oral Flupirtine And Oral Diclofenac Sodium For Analgesia And Adverse Effects In Elective Abdominal Surgeries. J Anaesthesiol Clin Pharmacol. 2015;31(1):69-73.
[10]. Khatavkar SS, Et Al. Flupirtine For Pre-Emptive Analgesia Following Laparoscopic Gynaecological Surgeries. Indian J App Res. 2016;6(7):54-56.
[11]. Harish S, Et Al. A Randomized Controlled Study Of Flupirtine And Diclofenac Sodium In The Treatment Of Pain In Postpartum Women. J Clin Diagn Res. 2012;6(8):1391-1394.
[12]. Zuccaro P, Et Al. Flupirtine: An Analgesic With A Novel Mechanism Of Action And A Favorable Safety Profile. Pain Pract. 2012;12(8):623-633.
[13]. Devine E. The SNEPCO Concept: Selective Neuronal Potassium Channel Openers Like Flupirtine And Retigabine. Expert Opin Investig Drugs. 2014;23(11):1549-1558.
[14]. Kissin I. Preemptive Analgesia. Anesthesiology. 2000;93(4):1138-43.