Gabapentin: Perspective on Its Use as a Postoperative Analgesic by Colorectal Providers

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ABSTRACT

Gabapentin (Gb) is increasingly used in postoperative pain management largely to reduce opioid use but without a strong evidence base. There is no literature available to understand why and how surgeons use gabapentin. We surveyed 85 NESCRS (New England Society of Colon and Rectal Surgeons) members by email (August–October 2024). Of the 32 responses (38% response rate), 28 were included: 68% were colorectal surgeons, 18% were advanced practice providers, 39% were female, 46% were aged 31–50 years, and 68% were White. Commonly prescribed analgesics were opioids (96%), acetaminophen (93%), nonsteroidal anti-inflammatory drugs (68%), and Gb (57%). Providers believed Gb reduced opioid use (75%), provided analgesia (54%), and decreased ileus (39%), length of stay (21%), and delirium (4%). Experienced providers more often reported that Gb's benefits outweighed its risks (69%), reduced postoperative opioid use (46%), or that they were confident in managing Gb-related adverse effects (38%), compared with 63, 18, or 27%, respectively (p-value=1.00,0.21, or 0.67). Overall, colorectal providers acknowledge Gb's potential benefits and associated risks as a postoperative analgesic.

KEYWORDS: delirium; geriatric; ileus; KAP; gabapentinoid

INTRODUCTION

Gabapentin, originally approved by the FDA for seizure disorder and neuropathic pain, has demonstrated benefits in chronic pain conditions, such as postherpetic neuralgia and diabetic neuropathy.[1] More recently, its off-label use for acute postoperative pain has gained traction, supported by randomized controlled trials (RCTs) in orthopedic, scrotal, and spinal surgeries.[2-5] Unfortunately, it is also being misused as a drug of abuse since the early 2000s.[6]

Yet, conflicting evidence persists: inflammatory bowel disease, orthopedic, thyroidectomy, and cardiac populations revealed no significant reductions in postoperative pain or opioid use.[7-10] Moreover, the potential for adverse events, including a higher incidence of delirium (3.4% vs 2.6% in non-users) in older adults (aged 65 and above), underscores the need to be thoughtful about patient selection and dosing protocols.[11]

Despite inconsistencies, gabapentin remains a key component of multimodal analgesia strategies, particularly within Enhanced Recovery After Surgery (ERAS) protocols.[12] ERAS guidelines for elective colorectal surgery recommend an opioid-sparing analgesic approach, using scheduled acetaminophen, non-steroidal anti-inflammatory drugs, and gabapentin to improve postoperative outcomes (e.g., shorter time to return of bowel function and length of stay (LOS)).[13] However, standardized dosing strategies and clear indications for perioperative gabapentin remain elusive.[14] As a result, many institutions rely on anecdotal approaches, potentially exposing patients to unnecessary risks while aiming for the benefits of multimodal analgesia.[15,16]

Despite gabapentin's frequent inclusion in ERAS protocols, there is a critical lack of data on the Knowledge, Attitudes, and Practices (KAP) of colorectal providers regarding its use.[17] This study addresses that gap by examining the decision-making of colorectal surgery teams regarding the purported analgesic and opioid-sparing advantages of gabapentin against potential safety concerns in everyday clinical practice. We aim to inform evidence-based guidelines and optimize postoperative pain management strategies.

METHOD

Study Participants

This cross-sectional study targeted colorectal surgeons and advanced practice providers (APPs), including nurse practitioners (NPs) and physician assistants (PAs) practicing in Maine, Vermont, New Hampshire, Massachusetts, Connecticut, and Rhode Island who were members of the New England Society of Colon and Rectal Surgeons (NESCRS). Ethical approval was obtained from the Institutional Review Board at Rhode Island Hospital (IRB No. 2057553-3). Participant confidentiality and data security were rigorously maintained by removing identifiers before analysis, and no incentives were offered for participation. Participants were engaged in clinical inpatient care for at least 50% of their time, and they were engaged in the care of inpatient surgical patients undergoing colorectal surgeries for at least 50% of their time.

Study Setting, Design, and Procedure

From August to October 2024, a self-reported Knowledge, Attitude, and Practice (KAP) survey was administered anonymously to 85 eligible NESCRS members, including colorectal surgeons, nurse practitioners (NPs), and physician assistants (PAs). The survey was delivered through REDCap©, a secure electronic platform.[18]

Survey Development

A multidisciplinary research team – comprising a geriatrician specializing in postoperative colorectal care (AR), a statistician with postdoctoral training in epidemiology (JFM), a master's student in public health (MZ), two colorectal surgeons (SS and MV), and an additional geriatrician experienced in surgical co-management services (LM) – developed the questionnaire, based on validated scales and guided by ERAS recommendations.[13,19] The survey items were designed to capture clinicians' understanding of gabapentin's mechanism of action, postoperative pain management potential, recommended dosing strategies, and known side effects.

Pilot-Testing

Before distribution, the survey was pilot-tested with five physicians from the Division of Geriatrics and Palliative Care Medicine and one physician from the Division of General Surgery. Feedback regarding question relevance, duplication, and response-option clarity was collected via email. Revisions were then incorporated to enhance clarity and relevance.

Survey Instrument

The final instrument consisted of 27 questions, primarily closed-ended with "Yes/No" or Likert-scale response options, requiring approximately 10–20 minutes to complete.[20] One open-ended question allowed respondents to provide comments, concerns, or suggestions about balancing the risks and benefits of gabapentin prescribing. Demographic information (age, gender, race, years of experience) and practice characteristics were also collected.

Data Collection and Analysis

All survey responses were recorded anonymously. Each item was reviewed by the research team for technical accuracy and completeness before data analysis. Four participants were excluded because they did not dedicate at least 50% of their time to inpatient colorectal surgery care. Descriptive statistics were then used to evaluate participants' knowledge, attitudes, and practices regarding gabapentin in colorectal surgical care; analyses were performed using SAS software.[21] Chi-square and Fisher's exact tests were employed to assess respondents' approaches to several postoperative analgesics for colorectal surgery patients.

RESULTS

Demographic characteristics of participants

Of the 32 returned surveys (38% response rate), four were excluded for devoting less than 50% of their time to inpatient colorectal surgery care. The final analytical sample included 28 participants, predominantly colorectal surgeons (19/28, 68%) and advanced practice providers (5/28, 18%), while 4 (14%) preferred not to specify their professional role. Among the respondents, nine were male colorectal surgeons, five were female colorectal surgeons, and four were female APPs. One APP and three colorectal surgeons did not respond to the gender question. Most respondents were female (11/28, 39%), aged 31–50 years (13/28, 46%), and White/Caucasian (19/28, 68%), with a smaller proportion identifying as Hispanic or Latino (2/28, 7%). Nearly half (13/28, 46%) reported having 10 or more years of clinical experience as colorectal surgeons or APPs. [**Table 1**]

Table 1. Baseline characteristics of the surveyed colorectal surgeons, or advanced practice providers (including nurse practitioners and physician assistants) members of the New England Society of Colon and Rectal Surgeons, New England region, August to October 2024.

Participants' characteristics	n, (%)
Age	
31–50	13 (47%)
51–70	11 (39%)
Prefer not to answer	4 (14%)
Gender	
Male	9 (32%)
Female	11 (39%)
Prefer not to answer	8 (29%)
Race/ethnicity	
White or Caucasian	19 (68%)
Hispanic	2 (7%)
Other race	2 (7%)
Prefer not to answer	5 (18%)
Practitioner type	
CS	19 (68%)
APP(a)	5 (18%)
Prefer not to answer	4 (14%)
Number of years of experience as a CS or APP	
At least 1 year but less than 3 years	3 (11%)
At least 3 years but less than 5 years	4 (14%)
At least 5 years but less than 10 years	4 (14%)
10 years or more	13 (47%)
Prefer not to answer	4 (14%)

Notes: a) APP includes NPs and PAs members of the New England Society of Colon and Rectal Surgeons.

Abbreviations: APP – advanced practice providers; CS – colorectal surgeons; NP – nurse practitioners; PA – physician assistants.

Influence of Provider Experience

Participants with fewer years in practice indicated greater familiarity and a more favorable attitude toward gabapentin's effectiveness (55% vs. 46%; p-value=0.6820). Those with more than 10 years of experience were more likely to believe the benefits of gabapentin outweigh the risks (69% vs. 63%; p-value=1.000), to express confidence in managing potential adverse effects (38% vs. 27%; p-value=0.6792), and to assert that gabapentin reduces overall postoperative opioid use (46% vs. 18%; p-value=0.2108). Although these differences were not statistically significant, they suggest a trend in how clinical experience may shape perceptions of gabapentin's role in perioperative pain management. [**Figures 1,2**]

Figure 1. Overall attitude toward the effectiveness of gabapentin in managing pain as a postoperative analgesic, and the potential benefits of gabapentin outweigh the risk, among CS, or APP members of the New England Society of Colon and Rectal Surgeons, New England region, August to October 2024.

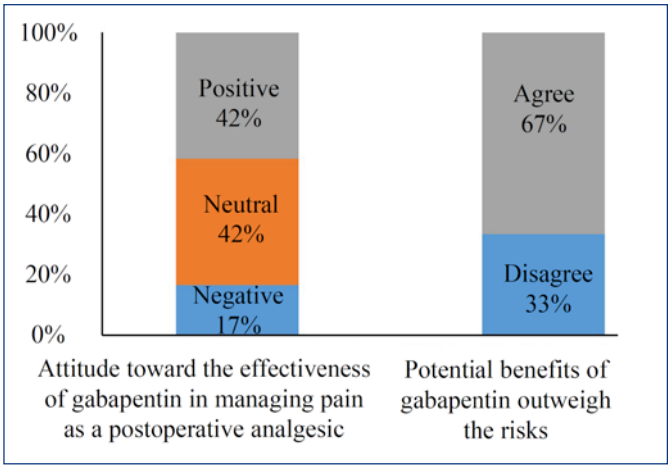
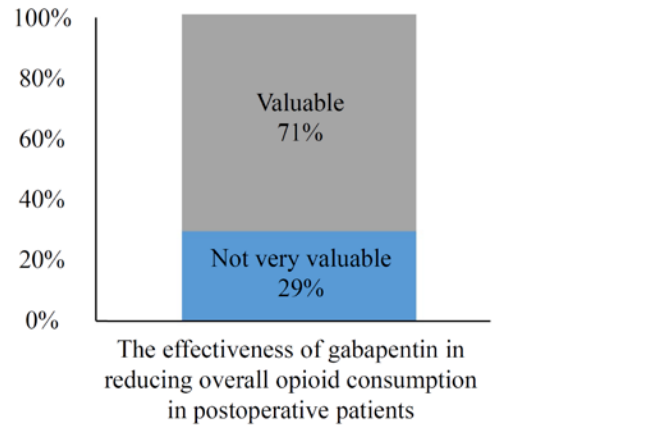


Figure 2. How valuable gabapentin is for reducing the overall opioid consumption of postoperative patients among CS, or APP members of the New England Society of Colon and Rectal Surgeons, New England region, August to October 2024.



Commonly Prescribed Analgesics

When queried about their usual postoperative pain management for colorectal surgery patients, the vast majority reported prescribing opioids (27/28, 96%) and acetaminophen (26/28, 93%), followed by NSAIDs (19/28, 68%), gabapentin (16/28, 57%), and topical anesthetics (11/28, 39%).

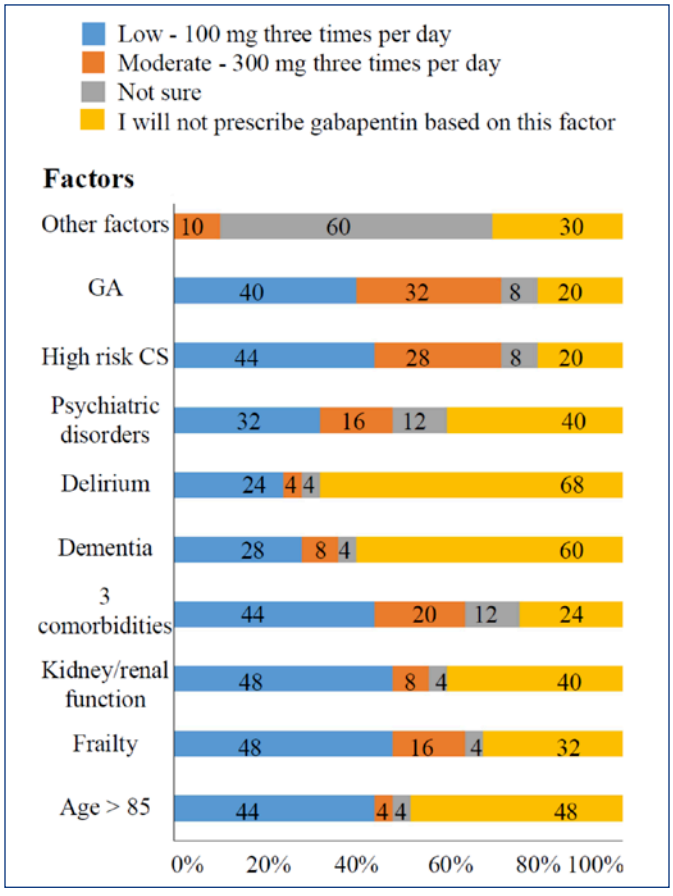
Factors Modifying Analgesic Regimens

Participants identified the top three patient-related factors prompting them to modify their usual use of: 1) Opioids: delirium (23/28, 82%), age over 85 (22/28, 79%), and dementia (21/28, 75%); 2) NSAIDs: renal insufficiency (18/28, 64%), age over 85 (11/28, 39%), and frailty (5/28, 18%); 3) Gabapentin: age over 85 (13/28, 46%), delirium or dementia (each 11/28, 39%), and frailty (7/28, 25%). [**Figure 4**]

Pain Assessment Scales

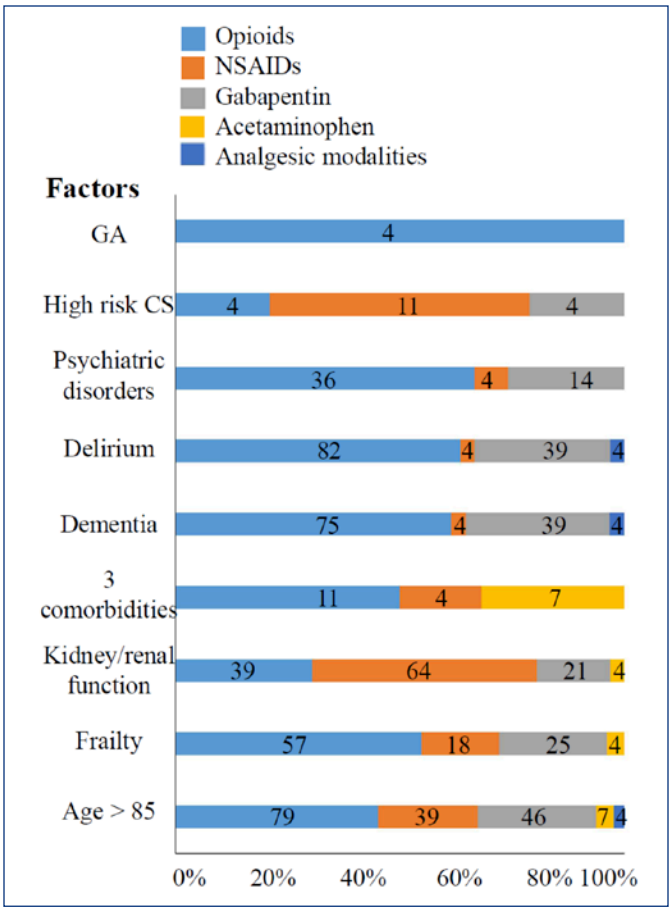
The most commonly used pain assessment tool was the Numerical Rating Scale (NRS) (17/28, 61%), followed by the Visual Analog Scale (VAS) (6/28, 21%), Faces Pain Scale (FPS)

Figure 3. Typical dosage of gabapentin prescribed based on different factors among CS, or APP members of the New England Society of Colon and Rectal Surgeons, New England region, August to October 2024.



Abbreviations: APP – advanced practice providers; CS – colorectal surgeons; GA – General anesthesia; NP – nurse practitioners; PA – physician assistants.

Figure 4. Factors that would cause the practitioners to modify the analgesic modalities regimen among CS, or APP members of the New England Society of Colon and Rectal Surgeons, New England region, August to October 2024.



(5/28, 18%), and Verbal Rating Scale (VRS) (3/28, 11%). Two respondents (7%) did not utilize any of these standardized measures.

Gabapentin-Prescribing Patterns and Dosage Influences

Nearly all respondents (27/28, 96%) reported prescribing gabapentin as a postoperative analgesic for colorectal surgery; 11 (40%) did so frequently. When determining dosage, 25 respondents considered the following common factors: a) no dose: delirium (17/25, 68%), dementia (15/25, 60%), and age over 85 (12/25, 48%); b) low dose (100mg): frailty and renal impairment (each 12/25, 48%), followed by age over 85, dementia, or high-risk colorectal surgery (each 11/25, 44%); c) moderate dose (300 mg): general anesthesia (8/25, 32%), high-risk colorectal surgery (7/25, 28%), and three or more comorbidities (5/25, 20%). [**Figure 3**]

Potential Side Effects and Management

The side effects of gabapentin most frequently reported by participants included sedation (21/28, 75%), delirium (18/28, 64%), dizziness (12/28, 43%), nausea or vomiting (4/28, 14%), and leg swelling (2/28, 7%). Among 25 respondents who indicated how they managed such adverse effects, 64% rarely encountered them, whereas 36% sometimes did. 80% of those who observed side effects stopped administering gabapentin entirely, 16% reduced dosage, and 4% consulted a hospitalist or geriatrician. Post-discharge, 76% discontinued gabapentin, while 12% continued it as initially prescribed.

Perceived Benefits

When asked about gabapentin's main perceived advantages as a postoperative analgesic, 21 respondents (three-quarters of the sample) highlighted the potential for reducing opioid use, followed by improved pain control (15/28, 54%), reduced ileus (11/28, 39%), decreased length of stay (6/28, 21%), and minimized delirium (1/28, 4%).

Overall Perspective Regarding Gabapentin Use

Three respondents answered the open-ended question regarding balancing the risks and benefits of gabapentin prescribing. Across these comments, participants highlight a preference for minimizing opioid use in postoperative pain management, often aiming to discharge patients on non-opioid medications (e.g., acetaminophen). One participant specifically noted that gabapentin is seldom required due to effective alternatives such as Transversus Abdominis Plane blocks and intravenous acetaminophen. They particularly mentioned using gabapentin for opioid-tolerant patients, assuming they would have a low tolerance to pain. Another emphasized that these practices – favoring reduced narcotics and selective use of gabapentin – stem from guidance received during fellowship training.

DISCUSSION

Gabapentin has gained prominence as part of multimodal postoperative pain management strategies, largely due to a belief that it has the potential to reduce perioperative opioid consumption.[3,4,22,23] While RCTs in orthopedic, thoracic, breast, and thoracotomy surgeries have demonstrated an opioid-sparing effect, its direct analgesic benefit remains less consistent.[5] A meta-analysis by Arumugam et al that included procedures such as abdominal hysterectomy, breast cancer surgery, cholecystectomy, and thyroidectomy similarly concluded that gabapentin significantly reduces opioid requirements, although data on its impact on pain scores were more variable.[23]

Despite this growing body of evidence, there is a notable paucity of studies focusing on older adults, a population especially vulnerable to gabapentin's known central nervous system side effects.[11] As gabapentin is also on the Beers List of potentially inappropriate medications for older adults, its safety profile in elderly patients warrants particular

caution.[11,24] This knowledge gap is of concern for surgeons seeking to balance effective pain control with the need to minimize delirium and other adverse events.

Our survey findings provide insights into how colorectal providers navigate these considerations. Although the overwhelming majority (96%) reported using gabapentin, only 40% did so frequently, indicating that concerns regarding sedation, delirium, and dizziness – consistent with prior findings – likely moderate its use.[9-11] Prescribing patterns regarding opioid and gabapentin use were influenced by patient age, dementia, delirium, and frailty, while the use of NSAIDs was primarily driven by renal function. Providers were also mindful of the dose of gabapentin that was being prescribed. Participants highlighted age >85 years, dementia, and delirium as key factors deterring them from prescribing gabapentin, aligning with the broader caution urged in the geriatric population.[11] They also reported tailoring gabapentin doses between 100mg and 300mg based on comorbidities such as frailty and renal dysfunction, echoing an individualized approach recommended in ERAS protocols.[13]

Regarding providers' attitudes toward gabapentin, our data suggest that both newer and seasoned clinicians see its potential value in minimizing opioid use, working as an analgesic, as well as reducing ileus, hospital length of stay, and delirium – a finding that mirrors current clinical guidelines.[2] A majority of the providers discontinued gabapentin post-discharge, which aligns with the goal of its use post-operatively. Less-experienced clinicians were more apt to endorse gabapentin's analgesic utility, whereas those with a decade or more of experience were more inclined to believe its overall benefits outweigh its risks and felt confident managing complications. Although these differences were not statistically significant, they underscore how clinical experience and familiarity may influence risk-benefit assessments of perioperative gabapentin.

Lastly, our study investigated providers' practices regarding gabapentin use. Along with opioids, Acetaminophen, and NSAIDs, we found surgical teams using gabapentin for pain management. They reported multiple factors affecting their choice of pain medication, including age and comorbidities (e.g., dementia, delirium, renal function). They were more comfortable prescribing low doses (100mg), being mindful of frailty, renal function, age, dementia, or high-risk colorectal surgery. The providers were comfortable with a moderate dose (300mg), considering the use of general anesthesia, high-risk colorectal surgery, and patients with ≥3 comorbidities, which likely represents sicker patients with a need for more careful and multimodal pain management.[25,26]

To reduce the use of opioid analgesics in acute pain, multimodal analgesia with the use of non-opioid medication is often implemented to optimize pain management while mitigating adverse side effects.[27] Transversus abdominis plane (TAP) blocks, which one of our respondents noted, offer superior localized pain control while reducing the need for systemic opioids.[28,29] Compared to gabapentin, which is often used as an adjunct for neuropathic pain relief and multimodal analgesia, TAP blocks provide more targeted pain relief.[30] As the respondent mentioned, TAP blocks, along with intravenous acetaminophen, have become more commonly employed as part of enhanced recovery protocols.[31] These methods may contribute to better pain control and shorter hospital stays compared to reliance on general anesthesia and systemic analgesics alone.[32] However, while TAP blocks effectively manage somatic pain, gabapentin remains relevant in addressing neuropathic pain components, highlighting the importance of individualized pain management strategies.[33,34] Concurrent use of acetaminophen, lidocaine patches, and regimens, including NSAIDs and gabapentin, might also reduce the need for opioid medication, but the side effect profile still requires attention.[35] Of note, most providers discontinued gabapentin at discharge, reflecting its key role in immediate postoperative pain management while avoiding long-term medication.[36,30,37] This practice aligns with the principle of multimodal analgesia under ERAS guidelines, which encourage the use of non-opioid analgesics to expedite recovery while limiting opioid dependence.[13,38] Nevertheless, the lingering concerns about delirium risk, particularly in older adults, highlight the need for more robust randomized control trials – focusing on both efficacy and safety – to guide perioperative gabapentin use in this vulnerable group.[11]

LIMITATIONS

Several limitations should be acknowledged. First, our survey is geographically confined to a single region, limiting generalizability to other settings.[39] Second, the modest response rate (38%) raises the possibility of response bias, wherein those with strong opinions regarding gabapentin might have been more motivated to participate.[40] Third, we focused on colorectal surgery providers; thus, these findings may not reflect practices in other surgical specialties with differing patient populations.[41] Finally, this cross-sectional design precludes causal inferences, and further prospective or randomized studies are needed to clarify optimal dosing and patient selection for gabapentin in postoperative pain management.[42]

CONCLUSION

In summary, most colorectal surgeons and advanced practice providers in our study recognized gabapentin's potential to reduce opioid use and offered favorable views on its role in postoperative analgesia. Yet the perceived risk of adverse effects – particularly in older, frail, or cognitively impaired patients – limits its routine application. Given the growing emphasis on multimodal analgesia in Enhanced Recovery After Surgery protocols, further high-quality research is necessary to establish evidence-based guidelines for safe, effective gabapentin use, especially in vulnerable populations.[43,44]

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