International Journal of Scientific Reports
Doshi SN et al. Int J Sci Rep. 2025 Oct;11(10):358-366
http://www.sci-rep.com
pISSN 2454-2156 | eISSN 2454-2164
DOI: https://dx.doi.org/10.18203/issn.2454-2156.IntJSciRep20252947

Original Research Article

Real-world use of lacosamide in epilepsy: results from a cross-sectional survey of neurologists in India

Nitinkumar S. Doshi[1]*, Mrunmayi S. Sawant[2], Kunal Khobragade[1]

[1]Medical Affairs, Mankind Pharma Ltd., Navi Mumbai, Maharashtra, India
[2]Birla Institute of Technology and Science, Pilani, Rajasthan, India

Received: 29 July 2025
Accepted: 01 September 2025

***Correspondence:**
Nitinkumar S. Doshi,
E-mail: nitin.doshi@mankindpharma.com

ABSTRACT

Background: Epilepsy affects over 50 million people worldwide, having significant burden in countries like India. Despite existing antiepileptic drugs (AEDs), many patients face suboptimal seizure control or side effects. This survey aimed to assess how Indian neurologists use lacosamide in routine epilepsy care.
Methods: A cross-sectional, questionnaire-based survey was conducted across India between January and March 2025, involving 244 neurologists actively managing epilepsy cases. The 20-item survey questionnaire covered clinical scenarios for lacosamide use, dosing and titration strategies, efficacy perceptions, safety practices, drug-drug interactions, application in special populations, intravenous use, and patient adherence. Responses were collected anonymously and analyzed descriptively.
Results: This survey of Indian neurologists reveals widespread use of lacosamide, primarily for focal-onset seizures in both refractory (55.3%) and newly diagnosed (49.6%) cases. It is mostly used as adjunctive therapy (70.5%), with some using it as monotherapy according to patient needs. Safety and tolerability (63.1%) are the primary drivers for prescribing lacosamide, with efficacy (42.6%) as a key secondary factor. Seizure control is often achieved within 2–4 weeks (49.2%) and its use in pediatric and elderly patients is selective, with lower starting doses. Overall, 92.6% of neurologists reported satisfaction with lacosamide in clinical practices.
Conclusions: The findings highlight lacosamide as a well-accepted and widely utilized antiepileptic drug among Indian neurologists, valued for its safety, tolerability, and efficacy. Its flexible use across diverse patients, especially in focal-onset seizures, combined with high clinician satisfaction, reinforces its role as a trusting option in real-world epilepsy management.

Keywords: Epilepsy, Lacosamide, Survey, Neurologists

INTRODUCTION

Epilepsy is a chronic, non-communicable disease of the brain described by recurrent seizures.[1,2] Approximately 50 million people worldwide live with epilepsy, with active prevalence ranging from 4 to 10 per 1,000 population. Approximately 80% of people with epilepsy reside in low- and middle-income countries (LMICs), where prevalence can climb to 22 per 1,000 and incidence to 236 per 100,000.[3]

In India, prevalence estimates span 3.0–11.9 per 1,000 population, with rural rates exceeding urban. Incidence is about 0.2–0.6 new cases per 1,000 people per year, contributing to 10–12 million Indians living with epilepsy.[3,4] Primarily, epilepsy is managed through antiepileptic drugs (AEDs), with surgical options reserved for selected cases. Medications are the first-line treatment for nearly all patients with recurrent seizures and are beneficial in achieving complete seizure control in approximately 70% of cases.[2]

First-generation AEDs effectively suppress seizures but are limited by notable adverse effects and extensive drug–drug interaction profiles. Over the past 15 years, a range of second- and third-generation AEDs has been developed, aiding improved tolerability and a lower tendency for pharmacokinetic interactions.[5] Third-generation AEDs have fewer drug-drug interactions and a lower risk of severe adverse events. They maintain cognitive functions better, supporting long-term quality of life and adherence. These drugs provide predictable absorption, simpler dosing, and typically require fewer dose adjustments, making treatment convenient for patients and neurologists. For those resistant to older AEDs, third-generation options ensure effective seizure control and present a more favorable balance between efficacy and side effects.[6,7]

Lacosamide (LCM), a third-generation antiseizure medication, was approved in 2008 by the USFDA and European Medicines Agency (EMA) as an adjunctive treatment in adults with focal epilepsy (partial-onset seizures) or without secondary generalization aged over 16 years, and primary generalized tonic-clonic seizures.[5,8] It was approved in India by CDSCO in 2010 for adjunctive treatment of partial onset seizures in patients over 17 years of age.[9] LCM selectively enhances slow inactivation of voltage-gated sodium channels through binding to the collapsin response mediator protein 2 (CRMP 2).[10] This action is in contrast to older AEDs which fast-inactivate sodium channels, block rapid neural firing, and carry a higher risk of neural side effects.[11] Lacosamide is rapidly and fully absorbed (t_{max} 0.5–2 hours, ~100% bioavailability), has low protein binding, and distributes widely, which allows simpler dosing, fewer adjustments, and improved safety versus older AEDs.[12]

The primary objective of this survey was to methodically assess how neurologists across India integrate lacosamide into routine epilepsy management. It explored the clinical scenarios prompting its use, its application as monotherapy or adjunctive therapy, and real-world practices related to dosing, titration, and discontinuation. The survey also examined safety-monitoring approaches, concerns around drug–drug interactions, and the use of intravenous lacosamide in special populations and acute settings. By capturing data on time to seizure control, adherence, and overall neurologists' satisfaction, the study aimed to highlight gaps between guidelines and real-world practice, providing actionable insights to support neurologists' education, enhance treatment strategies, and inform marketing and policy decisions.

METHODS

This study employed a cross-sectional design using a structured, questionnaire-based survey to investigate clinical practices and perceptions of lacosamide in epilepsy management, conducted between January and March 2025. A total of 244 neurologists, actively involved in epilepsy care across academic and clinical settings in India, were recruited to participate.

The survey utilized a nationwide approach by reaching out to neurologists from various regions and practices in India, instead of focusing on a single hospital or institution. The participating neurologists were in the age range of 40 to 60 years, having more than 5 years of clinical experience. Neurologists were chosen based on their educational qualifications and clinical experience in the field of epilepsy management. Neurologists with less than 5 years of clinical experience, those outside the specified age range, or without relevant qualifications in neurology practice were excluded. The survey tool comprised 20 multiple-choice questions focusing on areas including initial indications, titration strategies, efficacy in drug-resistant epilepsy, tolerability, drug-drug interactions, and special population considerations (pediatric and geriatric). Additional items explored intravenous lacosamide use, ECG monitoring practices, and patient adherence patterns. The questionnaire was distributed electronically, and responses were collected anonymously to reduce response bias.

Microsoft Excel was used to gather and examine the responses. Data were analysed according to the frequency of individual response possibilities because participants were allowed to choose more than one response for some items, hence the number of responses may be more than 100% and may differ in every graph. Excel-generated graphs and charts were used to display the data. Data were analyzed descriptively to identify patterns in lacosamide utilization, rationale for therapeutic choices, and challenges encountered in routine practice.

RESULTS

A total of 244 neurologists, regularly managing epilepsy cases in both academic and clinical settings, completed the questionnaire.

Clinical efficacy and dose titration practices

The majority of neurologists prescribe lacosamide for focal-onset seizures in refractory epilepsy (55.3%) and newly diagnosed epilepsy (49.6%). This underscores lacosamide's established role in the management of focal epilepsy, especially when first-line treatments are limited. Only 13.5% of neurologists use lacosamide for generalized tonic-clonic seizures, and a mere 3.7% for absence seizures. This pattern conforms with current clinical guidelines and approvals, which primarily support lacosamide for focal-onset seizures over generalized epilepsy types (Figure 1).

The most significant reason for lacosamide use is its tolerability and safety profile (63.1%), indicating that most neurologists emphasize patient safety and less adverse effects when selecting antiepileptic therapy. Clinical efficacy is the next most cited factor (42.6%), showing that effectiveness in seizure control is also a crucial factor, though slightly less so than safety. Ease of titration (32.8%) and lack of drug interactions (26.2%) are also

important, reflecting the value placed on practical aspects of medication management, such as adjusting doses smoothly and preventing complications with other drugs. This shows the neurologists' choice of lacosamide is driven by its effectiveness, favorable safety profile, and ease of integration into complex treatment regimens. This supports its role as a preferred option in the management of epilepsy, especially when weighing efficacy, safety, and practical considerations in real-world clinical practice (Figure 2).

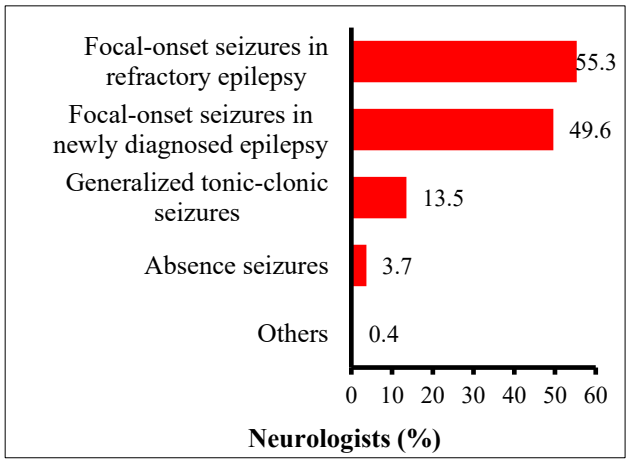

Figure 1: Patterns of lacosamide prescription in different epilepsy scenario.

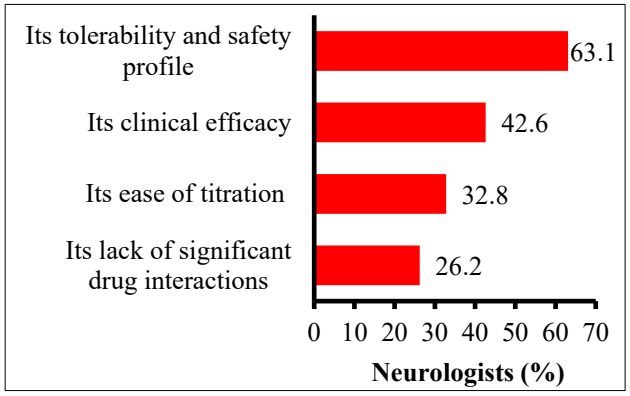

Figure 2: Neurologists' reasons for preferring lacosamide in clinical practice.

The neurologists are prescribing and managing lacosamide for epilepsy with a strong preference for starting with lower doses, most commonly 50 mg (51.6%) or 100 mg (46.7%) twice daily. In comparison, higher initial doses are rarely chosen, reflecting a cautious and guideline-driven approach to patient safety and tolerability.

Most neurologists (70.5%) prescribe lacosamide as an adjunctive therapy, meaning it is most commonly added to existing antiepileptic regimens rather than used alone. Only 9.4% of neurologists use lacosamide as monotherapy, indicating that it is rarely chosen as the sole treatment option for patients. The preference for adjunctive therapy matches with clinical guidelines and research evidence, which support lacosamide's effectiveness and safety when added to other antiepileptic drugs (Figure 3).

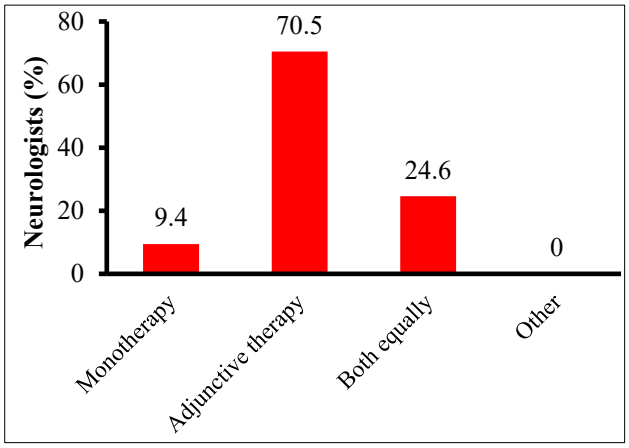

Figure 3: Neurologists' preferences for lacosamide use: monotherapy versus adjunctive therapy scenarios.

Regarding discontinuation, most neurologists (44.3%) manage lacosamide withdrawal via gradual tapering over 2–4 weeks, while 25.8% prefer a one-week taper, and 24.2% tailor the approach based on prior therapy duration, demonstrating individualized care; only a small fraction (5.7%) choose abrupt cessation, emphasizing the widespread recognition of the risks associated with sudden withdrawal. These patterns reflect a careful, patient-centered strategy in initiating and discontinuing lacosamide therapy, aiming to optimize efficacy while minimizing risks.

Dose escalation is most frequently achieved by increasing 50 mg weekly (43.9%), with fewer neurologists opting for more aggressive or less structured titration methods. This underscores the value placed on gradual adjustment to minimize adverse effects.

When targeting maximum doses, the majority favor 400 mg/day (63.5%), with 300 mg/day and higher doses being less common, indicating consensus on an effective therapeutic window.

Most neurologists view IV lacosamide positively, with 41.4% considering it advantageous and 44.3% finding it occasionally helpful. Only a small minority find it rarely relevant (10.2%) or valuable (4.1%). This distribution focus on the broad clinical value of having an IV formulation, which provides flexibility in acute environment or when oral administration is impossible.

Nearly half of neurologists (49.2%) report that seizure control is typically achieved within 2-4 weeks of starting lacosamide, highlighting its rapid action in clinical practice. Additionally, about 20.1% of neurologists observe seizure control within just one week, suggesting that a notable subset of patients may respond very quickly

to the medication. For others, seizure control is achieved within 4-8 weeks in 31.1% of cases, while only a small minority (3.7%) require more than eight weeks. Clinically, these findings are significant because they demonstrate that the majority of patients can expect seizure control within the first month of treatment, allowing physicians to set realistic expectations and make timely decisions regarding therapy adjustments if control is not achieved promptly (Figure 4).

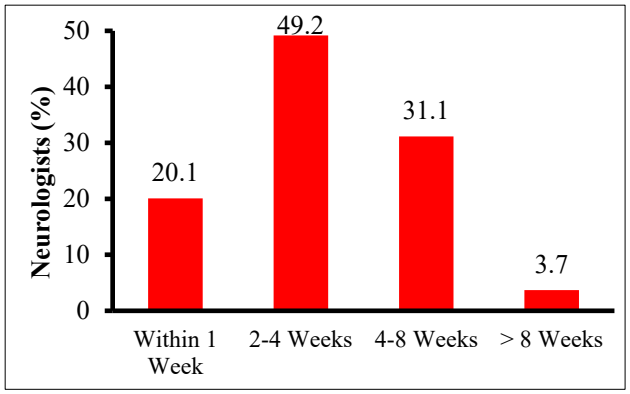

Figure 4: Neurologists' assessment of the average time to seizure control with lacosamide.

Use of lacosamide in special populations

As a treatment option in pediatric epilepsy cases, most neurologists (58.2%) consider lacosamide only in specific cases, suggesting a selective and personalized approach rather than routine use. A notable 19.3% rarely consider lacosamide, pointing to hesitancy or limited experience with this medication in children. Meanwhile, 17.6% of respondents routinely use lacosamide, reflecting a minority for whom it is a standard treatment option. Only 4.9% never consider lacosamide, indicating that complete avoidance is uncommon. While lacosamide is broadly accepted as a potential treatment in pediatric epilepsy, its use is most often reserved for clinical circumstances.

For administering lacosamide in elderly patients, the most common strategy, chosen by 53.3% of neurologists, is to initiate treatment with a reduced dose and slowly titrate upward. This approach likely arises from concerns about the increased sensitivity of elderly patients to medications, the more risk of side effects, and the presence of multiple comorbidities in this age group. Meanwhile, 35.2% of neurologists are comfortable using standard dosing protocols, suggesting assurance in lacosamide's safety profile for certain elderly patients, especially when close monitoring is possible. A smaller segment, 10.2%, opts to avoid using lacosamide altogether in elderly patients, possibly due to worries about adverse effects, drug interactions, or a need of evidence supporting its use in this population. Finally, 6.6% of neurologists reserve lacosamide only as a last resort, indicating a particularly cautious and careful approach, typically considering the drug only when other treatment options have been exhausted or are unsuitable.

24.2% of neurologists' report using lacosamide often for patients with psychiatric comorbidities, while the largest proportion, 47.1%, use it but with care. 20.1% rarely prescribe lacosamide in this context, and only 8.6% never use it for patients with psychiatric disorders. This distribution emphasizes that while lacosamide is generally considered a suitable option for patients with epilepsy and psychiatric comorbidities, most neurologists prefer a careful approach. The high percentage of neurologists who use it with caution reflects awareness of potential psychiatric side effects and the importance of monitoring mental health during therapy.

For assessing the efficacy of lacosamide in drug-resistant epilepsy, over half of the respondents (52.9%) rated lacosamide's efficacy as "good," while 35.2% considered it "moderate." A smaller proportion, 9.4%, reported "poor" efficacy, and only 2.5% described their experience as "excellent." This distribution highlights that lacosamide is generally regarded as an effective option for patients who have not responded to other antiepileptic drugs. The majority of neurologists observed at least moderate to good outcomes, suggesting that lacosamide often leads to meaningful seizure reduction in drug-resistant cases. While complete seizure control is uncommon, substantial improvement is achievable for many patients (Figure 5).

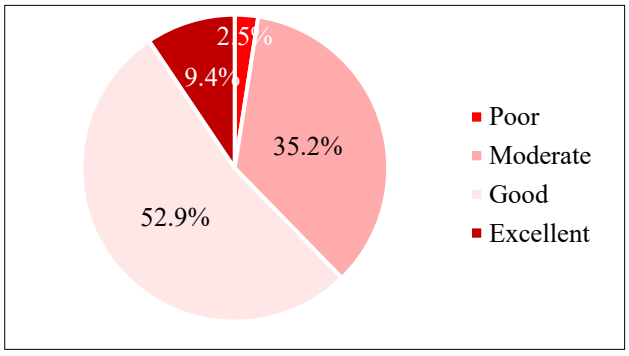

Figure 5: Neurologists' assessment of lacosamide efficacy in drug resistant epilepsy.

Treatment adherence and satisfaction

Regarding patients' adherence to lacosamide therapy, the majority report is either moderate (48.4%) or high (39.8%), indicating that most patients are generally compliant with their prescribed lacosamide regimen. A smaller proportion of neurologists observe low adherence (7.8%), and only 4.1% find adherence difficult to assess. Studies have found that most patients maintain good adherence over time, with adherence scores remaining higher than to some other antiepileptic drugs. However, there may be a gradual decline in adherence as treatment continues (Figure 6).

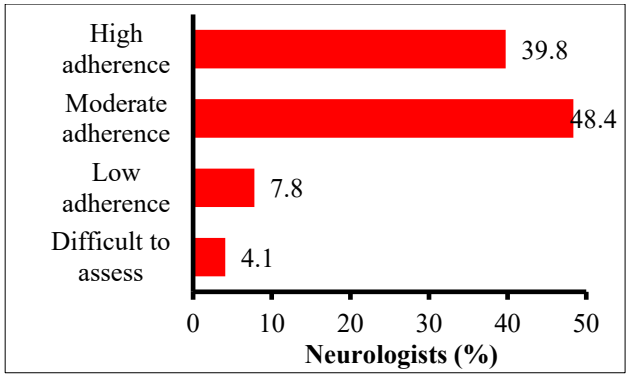

Figure 6: Neurologists' experience with patient adherence to lacosamide therapy.

Most neurologists (66.4%) report being "satisfied" with lacosamide, which generally meets expectations with its effectiveness, tolerability, and safety in epilepsy management. Additionally, 26.2% of respondents were "very satisfied", suggesting that lacosamide provides significant clinical benefits for many patients. A smaller proportion, 7.0%, remains neutral, which may reflect mixed experiences or changes in patient responses to the medication. Only 0.4% of neurologists' express dissatisfaction, highlighting that negative experiences are rare. These findings demonstrate that lacosamide is regarded as an effective and well-tolerated antiepileptic drug among neurologists (Figure 7).

Safety monitoring and adverse effects

Nearly half (47.5%) report that less than 10% of their patients' experience dizziness, while 33.6% observe this side effect in 10–20% of patients. A smaller proportion, 18.9%, indicates that 20–30% of their patients are affected, and only 1.2% report dizziness in more than 30% of cases. The findings highlight that, although dizziness is frequent, it typically affects a limited subset of patients in routine practice, and very high rates are uncommon.

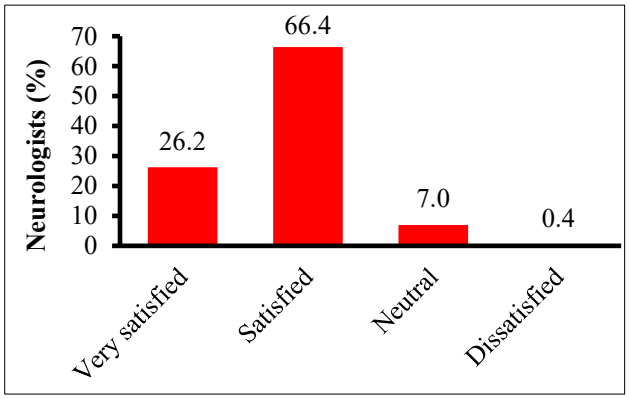

Figure 7: Neurologists' overall satisfaction with lacosamide in epilepsy management

The majority of respondents indicated that such drug-drug interactions are rare (37.7%) or occur only occasionally (37.7%), while a smaller proportion reported never encountering them (14.8%) or monitoring them frequently (9.8%). Significant drug-drug interactions with lacosamide are generally uncommon in clinical practice.

These findings are consistent with clinical evidence showing that lacosamide has a low potential for major pharmacokinetic interactions, particularly because it is minimally metabolized by cytochrome P450 enzymes and has low protein binding, reducing the chances of displacement interactions. However, neurologists remain alert when lacosamide is co-administered with other antiepileptic drugs or agents affecting cardiac conduction, as rare pharmacodynamic interactions can occur.

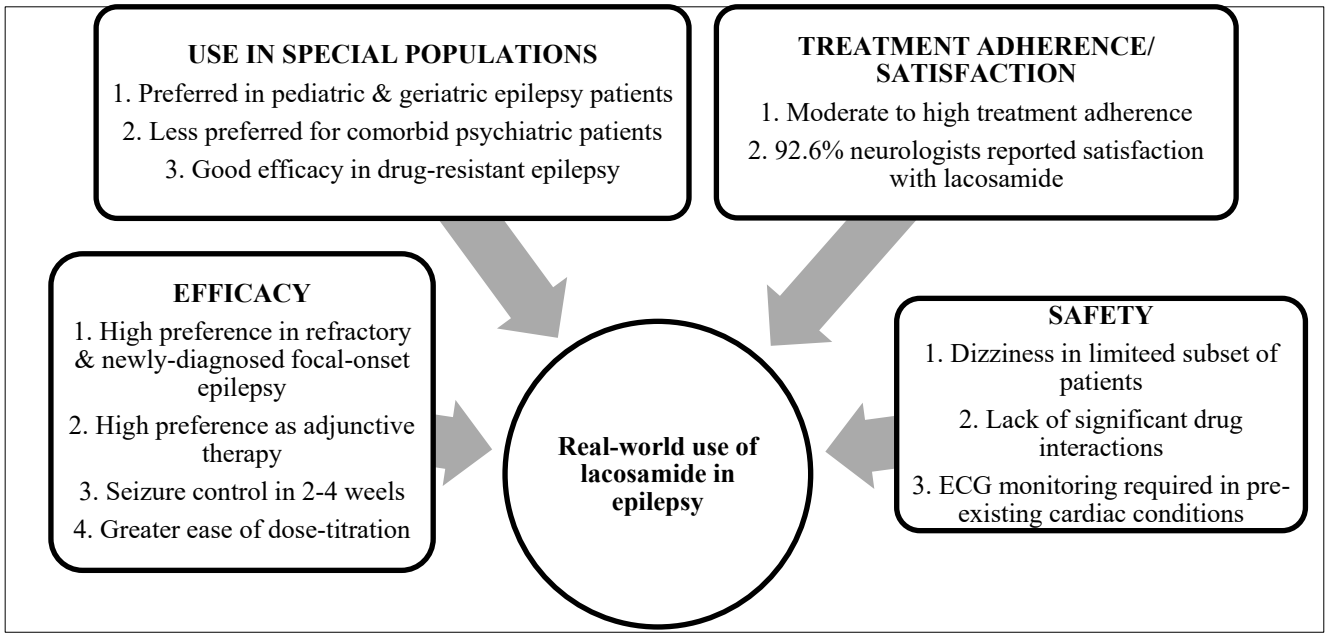

Figure 8: Highlights of overall results.

Carbamazepine requires the greatest caution when co-administered with phenytoin, as stated by 36.9% neurologists. This is followed by phenytoin (31.6%) and sodium valproate (26.2%), while 22.5% selected "none of the above," and only 2.9% chose "other." The prominence of carbamazepine and phenytoin reflects clinical concerns about potential pharmacokinetic and pharmacodynamic interactions, particularly potential additive cardiac side effects such as PR interval prolongation and arrhythmias. These findings elaborate on the values of careful monitoring and individualized risk assessment when prescribing lacosamide alongside other antiepileptic drugs, especially those with known cardiac or metabolic interactions.

50.4% of neurologists recommend ECG monitoring only for patients with pre-existing cardiac conditions, while 27.0% consider it mandatory for all patients. Additionally, 20.9% suggest ECG checks exclusively for elderly patients, and just 10.7% do not deem it necessary at all. This distribution highlights a prevalent clinical concern about lacosamide's potential cardiac side effects, such as arrhythmias and PR interval prolongation, which are more likely to occur in those with existing heart disease or advanced age. Although serious cardiac events are rare, performing a baseline ECG can help identify individuals at increased risk, thereby ensuring safer initiation of therapy.

Figure 8 provides an overview of the study results, categorizing the principal areas of interest into four separate sections.

DISCUSSION

The prescribing trends observed in this survey reaffirm lacosamide's primary role in managing focal-onset seizures, especially in cases of refractory (55.3%) and newly diagnosed epilepsy (49.6%). These findings align with the clinical guidelines and regulatory approvals, such as the United States Food and Drug Administration (USFDA) and International League Against Epilepsy (ILAE), which support lacosamide as monotherapy or adjunctive therapy for focal-onset seizures in patients aged ≥4 years.[13] The markedly lower prescription rates for generalized tonic-clonic seizures (13.5%) and absence seizures (3.7%) reflect lacosamide's limited efficacy and lack of strong evidence in treating generalized epilepsy syndromes.[14] This selective usage pattern highlights the importance of definite seizure classification and adherence to evidence-based practices when tailoring antiseizure therapy.

The observed preference for prescribing lacosamide as an adjunctive therapy (70.5%) over monotherapy (9.4%) reflects its well-established role in the management of refractory focal epilepsy. This trend is consistent with the clinical guidelines and regulatory approvals, which endorse lacosamide primarily as an add-on treatment for patients not achieving adequate seizure control with existing antiepileptic drugs. Multiple studies have demonstrated its efficacy and tolerability in this context, with responder rates (≥50% seizure reduction) ranging from 48% to 61% and favorable retention rates for over 6–12 months.[15,16] The relatively low use of lacosamide as monotherapy may be attributed to limited comparative data and a more careful approach in newly diagnosed patients. Emerging evidence suggests that lacosamide monotherapy can be effective in select populations, especially those with focal-onset seizures and good tolerability profiles.[17] These findings highlights the importance of personalized treatment strategies and support the continued use of lacosamide as a valuable adjunctive option in epilepsy care.

The rapidity with which neurologists observe seizure control with lacosamide emphasize its utility in practice. Nearly 20% of neurologists' report control within one week, and almost half by 2–4 weeks, with over 80% achieving control by one month of therapy. This swift onset conforms with clinical trial data demonstrating early seizure reduction during the titration phase of adjunctive lacosamide.[18]

Predominance of tolerability and safety (63.1%) as the foremost driver of lacosamide use mirrors accumulating evidence that lacosamide is exceptionally well-tolerated in both short- and long-term settings, with a relatively low incidence of critical adverse events and predominantly mild CNS effects like dizziness or fatigue. Efficacy, cited by 42.6%, remains a main consideration: randomized controlled trials and real-world studies demonstrate that adjunctive lacosamide achieves significant seizure-frequency reductions and 50% responder rates in refractory partial-onset epilepsy. Useful advantages, ease of titration (32.8%), stem from lacosamide's linear, dose-proportional pharmacokinetics, rapid attainment of steady-state concentrations, and high oral bioavailability, facilitating straightforward dose adjustments. Finally, the lack of clinically significant drug–drug interactions (26.2%) supports integration into complex polytherapy regimens, with minimal impact on concomitant medications' exposure profiles. These attributes underpin neurologists' preference for lacosamide when balancing efficacy, safety, and treatment in everyday clinical practice.[19,20]

In drug-resistant epilepsy settings, more than 85% of respondents rated lacosamide's efficacy as moderate to good, mirroring systematic reviews and real-world cohorts that report responder rates (≥50% seizure reduction) of 40–60% and retention rates above 70% at six to twelve months.[21] These findings reinforce lacosamide's role as a fast-acting adjunct when first-line agents fail, enabling physicians to set reasonable expectations and make adjustments in the small subset of patients who do not respond within the initial weeks of treatment.

The survey findings reveal a predominantly selective approach to lacosamide use in pediatric epilepsy, with

58.2% of neurologists reserving it for specific cases. This corresponds closely with recent literature highlighting individualized treatment strategies for children, particularly given the heterogeneity of epilepsy syndromes. Clinical guidelines and systematic reviews recommend lacosamide primarily for refractory focal seizures or when first-line therapies are unsuitable, supporting the observed trend toward cautious, case-by-case use.[22,23]

In the elderly, 53.3% of neurologists' initiate lacosamide at reduced doses with gradual titration to reduce risks associated with age-related pharmacokinetic changes, increased drug sensitivity, and the burden of comorbidities. This careful approach is consistent with geriatric prescribing principles emphasizing individualized dosing due to changed drug metabolism and excretion in older adults.[24] Conversely, 35.2% use standard adult dosing, supported by data showing that lacosamide does not require mandatory adjustments in patients with mild to moderate renal or hepatic impairment. These findings show the need for more targeted studies and real-world data to guide lacosamide use in geriatric epilepsy management.

Patient adherence to lacosamide was reported as moderate by 48.4% and high by 39.8% of neurologists, with only 7.8% observing low adherence and 4.1% unable to assess compliance. These data mirror real-world outcomes: one prospective study found lacosamide retention of 99.1% at 3 months and 93.3% at 6 months, indicating robust initial use with a mild drop-off over time. Likewise, a 24-week observational cohort reported retention rates declining from 98.1% at 4 weeks to 88.8% at 24 weeks, suggesting a gradual waning in long-term adherence despite overall good persistence. Neurologist satisfaction paralleled these adherence findings: 66.4% of respondents were "satisfied" and 26.2% were "very satisfied" with lacosamide's effectiveness, tolerability, and safety, whereas only 7.0% remained neutral and a mere 0.4% expressed dissatisfaction, highlighting its broad clinical acceptability among epilepsy specialists.[25,26]

While 50.4% recommend ECG checks only for patients with pre-existing cardiac conditions and 20.9% do so exclusively for elderly patients, 27.0% consider ECG monitoring mandatory for all patients, and just 10.7% do not deem it necessary. This distribution underscores widespread clinical awareness of lacosamide's potential to cause cardiac side effects, like arrhythmias and PR interval prolongation, which are more likely in individuals with heart disease or advanced age. Although major cardiac events associated with lacosamide are rare, baseline ECG screening is supported by clinical guidelines and expert consensus as a prudent measure to identify at-risk individuals and boost safer therapy initiation.[27]

Regarding adverse effects, dizziness emerges as the most commonly reported side effect, but its prevalence is generally limited in routine practice. Nearly half (47.5%) of neurologists' report that less than 10% of their patients' experience dizziness, 33.6% observe it in 10–20% of cases, and only 1.2% see this effect in more than 30% of patients. These observations positions with published clinical trial data, which report dizziness incidence rates of approximately 23–30% for lacosamide.[27,28] The findings emphasize that, while dizziness is a recognized and frequent side effect, it typically affects only a minority of patients in real-world settings, and very high rates are uncommon. This strengthen the importance of individualized risk assessment and patient counseling when prescribing lacosamide for epilepsy management.

Most frequently co-administered drug by neurologists with lacosamide, carbamazepine emerged as the antiepileptic drug that neurologists consider to require the greatest caution (36.9%), followed by phenytoin (31.6%) and sodium valproate (26.2%). This pattern reflects clinical concerns about potential pharmacokinetic and pharmacodynamic interactions, particularly the potential additive cardiac side effects such as PR interval prolongation and arrhythmias when lacosamide is combined with these agents.[27] Despite that, the majority of respondents reported that significant drug-drug interactions with lacosamide are rare (37.7%) or occur only occasionally (37.7%), with fewer neurologists encountering them frequently (9.8%) or never (14.8%). These findings position with existing clinical evidence indicating that lacosamide has a low potential for major pharmacokinetic interactions, largely because it is minimally metabolized by cytochrome P450 enzymes and exhibits low protein binding, thereby reducing the chance of displacement interactions.[27,28] Nonetheless, alertness remains essential, especially when lacosamide is prescribed alongside other antiepileptic drugs or medications that affect cardiac conduction, as rare pharmacodynamic interactions may still occur.

Limitations

The study has several limitations that should be considered. It is based on a cross-sectional, questionnaire-based survey relying on self-reported data from neurologists, which may introduce recall and response biases. Participation was voluntary, potentially leading to selection bias and limiting the generalizability of findings to all epilepsy practitioners. The analysis was purely descriptive, with no adjustments for confounding factors, restricting the ability to draw causal inferences. Additionally, regional variations in clinical practices across India may affect the applicability of results. Importantly, the survey focused on neurologists' perceptions without including patient outcome data, limiting objective evaluation of lacosamide's clinical effectiveness and safety.

CONCLUSION

In conclusion, lacosamide stands out as a reliable treatment option for epilepsy, well-supported by evidence

and widely used in real-world clinical practice. It is most frequently employed as adjunctive therapy for focal-onset seizures, mainly in refractory cases, and also finding a role in newly diagnosed patients and, selectively, as monotherapy. Its strong safety and tolerability profile, characterized by lowering the drug interactions, manageable adverse effects, and tailored cardiac monitoring, supports use in both geriatrics and those with psychiatric comorbidities. The availability of an intravenous form adds to its value in emergency settings, while the ability to personalize dosing and tapering helps fit it into long-term treatment plans. High levels of neurologist satisfaction, driven by lacosamide's consistent efficacy and adjustability, highlighting its importance as a reliable, patient-centered option in epilepsy management.

ACKNOWLEDGEMENTS

Authors would like to thank all the neurologists across India who participated in this survey. Their valuable time, clinical insights, and contributions were essential in shaping the findings of this study.

Funding: The study was funded by Mankind Pharma Ltd.
Conflict of interest: Dr. Kunal Khobragade and Nitinkumar S. Doshi are the employees of Mankind Pharma Ltd.
Ethical approval: Not required

REFERENCES

1. World Health Organization. Epilepsy. 2024. Available at: https://www.who.int/news-room/fact-sheets/detail/epilepsy. Accessed on 02 May 2025.
2. American Association of Neurological Surgeons. Epilepsy. 2024. Available at: https://www.aans.org/patients/conditions-treatments/epilepsy/. Accessed on 02 May 2025.
3. Singh G, Sander JW. The global burden of epilepsy report: Implications for low- and middle-income countries. Epilepsy Behav. 2020;105:106949.
4. Mehndiratta MM, Aggarwal V. Neurological disorders in India: past, present, and next steps. Lancet Glob Health. 2021;9(8):e1043-4.
5. Perucca E, Yasothan U, Clincke G, Kirkpatrick P. Lacosamide. Nat Rev Drug Discov. 2008;7(12):973-4.
6. Zhuo C, Jiang R, Li G, Shao M, Chen C, Chen G, et al. Efficacy and Tolerability of Second and Third Generation Anti-epileptic Drugs in Refractory Epilepsy: A Network Meta-Analysis. Sci Rep. 2017;7(1):2535.
7. Espinosa-Jovel C, Valencia N, Gaitán L, Riveros S. Impact of Third-Generation Antiseizure Medications on People with Epilepsy in a Low-Income Population: The Brivaracetam Experience in a Real-World Study. Drugs Real World Outcomes. 2024;11(3):477-85.
8. Carona A, Bicker J, Silva R, Fonseca C, Falcão A, Fortuna A. Pharmacology of lacosamide: From its molecular mechanisms and pharmacokinetics to future therapeutic applications. Life Sci. 2021;275:119342.
9. CDSCO. Lacosamide. Available at: https://cdscoonline.gov.in/CDSCO/Drugs. Accessed on 02 May 2025.
10. Wilson SM, Khanna R. Specific binding of lacosamide to collapsin response mediator protein 2 (CRMP2) and direct impairment of its canonical function: implications for the therapeutic potential of lacosamide. Mol Neurobiol. 2015;51(2):599-609.
11. Krauss GL, Edwards HB, Lin B. Lacosamide for the treatment of epilepsy. Ann Med. 2012;44(7):674-9.
12. Carona A, Bicker J, Silva R, Fonseca C, Falcão A, Fortuna A. Pharmacology of lacosamide: From its molecular mechanisms and pharmacokinetics to future therapeutic applications. Life Sci. 2021;275:119342.
13. Glauser T, Ben-Menachem E, Bourgeois B, Cnaan A, Guerreiro C, Kälviäinen R, et al. ILAE Subcommission on AED Guidelines. Updated ILAE evidence review of antiepileptic drug efficacy and effectiveness as initial monotherapy for epileptic seizures and syndromes. Epilepsia. 2013;54(3):551-63.
14. Perucca E. The pharmacological treatment of epilepsy: recent advances and future perspectives. Acta Epileptologica. 2021;3(1).
15. Zhao T, Yu LH, Zhang HL, Yu J, Feng J, Wang TT, et al. Long-term effectiveness and safety of lacosamide as adjunctive therapy in children and adolescents with refractory epilepsy: a real-world study. BMC Pediatr. 2023;23(1):249.
16. Jin Y, Zhang R, Jiang J, Liu X. Efficacy and tolerability of lacosamide as adjunctive therapy in patients with focal-onset seizures: an observational, prospective study. Acta Neurol Belg. 2023;123(3):1081-7.
17. Villanueva V, Giráldez BG, Toledo M, De Haan GJ, Cumbo E, Gambardella A, et al. Lacosamide monotherapy in clinical practice: A retrospective chart review. Acta Neurol Scand. 2018;138(3):186-94.
18. Babar RK, Bresnahan R, Gillespie CS, Michael BD. Lacosamide add-on therapy for focal epilepsy. Cochrane Database Syst Rev. 2021;5(5):CD008841.
19. Hou L, Peng B, Zhang D, Yang J, Wang Y, Tong L, et al. Clinical Efficacy and Safety of Lacosamide as an Adjunctive Treatment in Adults With Refractory Epilepsy. Front Neurol. 2021;12:712717.
20. Yang C, Peng Y, Zhang L, Zhao L. Safety and Tolerability of Lacosamide in Patients With Epilepsy: A Systematic Review and Meta-Analysis. Front Pharmacol. 2021;12:694381.
21. Vossler DG, Knake S, O'Brien TJ, Watanabe M, Brock M, Steiniger-Brach B, Williams P, et al. Efficacy and safety of adjunctive lacosamide in the treatment of primary generalised tonic-clonic seizures: a double-blind, randomised, placebo-

controlled trial. J Neurol Neurosurg Psychiatry. 2020;91(10):1067-75.
22. Ortiz de la Rosa JS, Ladino LD, Rodríguez PJ, Rueda MC, Polanía JP, Castañeda AC. Efficacy of lacosamide in children and adolescents with drug-resistant epilepsy and refractory status epilepticus: A systematic review. Seizure. 2018;56:34-40.
23. Zuberi SM, JD Symonds, Update on diagnosis and management of childhood epilepsies. J Pediatr (Rio J). 2015;91(6 Suppl 1):S67-77.
24. Stephen LJ, Brodie MJ. Epilepsy in elderly people. Lancet. 2000;355(9213):1441-6.
25. Jin Y, Zhang R, Jiang J, Liu X. Efficacy and tolerability of lacosamide as adjunctive therapy in patients with focal-onset seizures: an observational, prospective study. Acta Neurol Belg. 2023;123(3):1081-7.
26. Liu W, Li W, Wang P, Zhang H, Zhang E, Wu X, et al. Lacosamide as the first add-on therapy in adult patients with focal epilepsy: A multicenter real-world study. Front Neurol. 2023;14:1136814.
27. Yang C, Peng Y, Zhang L, Zhao L. Safety and Tolerability of Lacosamide in Patients With Epilepsy: A Systematic Review and Meta-Analysis. Front Pharmacol. 2021;12:694381.
28. Chung S, Sperling MR, Biton V, Krauss G, Hebert D, Rudd GD, et al. Lacosamide as adjunctive therapy for partial-onset seizures: a randomized controlled trial. Epilepsia. 2010;51(6):958-67.

Cite this article as: Doshi SN, Sawant MS, Khobragade K. Real-world use of lacosamide in epilepsy: Results from a cross-sectional survey of neurologists in India. Int J Sci Rep 2025;11(10):358-66.