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Prescribing Patterns of Gabapentinoids in Chronic Pain Management: A Single Institution Retrospective Chart Review

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ABSTRACT *~ Gabapentin and pregabalin are widely used in the management of neuropathic pain though their prescribing patterns, effectiveness, and safety profiles remain topics of ongoing research. This retrospective chart review analyzed the prevalence of gabapentinoid use in a chronic pain clinic over a one-year period from May 1, 2023, to April 30, 2024. The study examined patient records from four pain management physicians, focusing on those prescribed gabapentin or pregabalin. Of the 2,395 patients reviewed, 478 (19.96%) were prescribed gabapentin, while 236 (9.85%) received pregabalin. Combined, 714 patients (29.81%) were managed with either medication, highlighting the significant role gabapentinoids play in chronic pain treatment. The study found that gabapentin was prescribed more frequently than pregabalin. Although both medications are effective for neuropathic pain, their use comes with notable side effects, including dizziness, somnolence, and, in some cases, an increased risk of suicidal ideation. This review underscores the importance of careful patient monitoring and individualized treatment approaches when prescribing gabapentinoids. Future research across multiple sites and further stratification of patient demographics would enhance understanding of gabapentinoid use in clinical practice.* Psychopharmacology Bulletin. *2025;55(1):26–36.*

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Introduction

Gabapentinoids, including gabapentin and pregabalin, have become widely used medications in the management of neuropathic pain. Originally developed as anticonvulsants, these drugs have gained popularity for their ability to modulate pain pathways, particularly in chronic pain conditions such as diabetic neuropathy, postherpetic neuralgia, and lumbar radiculopathy. Despite their widespread use, the prescribing patterns, safety profiles, and long-term efficacy of gabapentinoids remain subjects of ongoing interest.

Physicians' practice patterns regarding gabapentinoid use can vary considerably. Gabapentin, as the older and more established drug in this class, is often more frequently prescribed, while pregabalin, with its higher bioavailability and faster onset of action, is sometimes preferred in specific clinical contexts. However, both medications share common side effects such as dizziness and somnolence, and they have raised concerns due to potential risks like dependence and increased suicidal ideation in certain patient populations. Given these complexities, understanding the real-world usage of gabapentinoids in clinical settings is crucial for optimizing patient care.

Gabapentin

In the 1970s, gabapentin was discovered as an anticonvulsive medication which was later approved by the Food and Drug Administration (FDA) for use in patients greater than 12 years in 1993.[1] Since its approval, it has developed a broad indication profile, is regarded as a safe medication, and has favorable dosing pharmacokinetics.[2] Current indications for gabapentin include neuropathic pain, partial seizures, restless leg syndrome, alcohol withdrawal, anxiety, tremor and a myriad of off-label uses.[3–8] Although the molecular structure of gabapentin is similar to GABA, it does not bind to GABA receptors. The primary mechanism of action is through binding of voltage-gated calcium channels which act as presynaptic inhibitors of neurotransmission.[9] Common doses of daily gabapentin are 900, 1200, 2400, and 3600 milligrams with peak plasma concentration noted at two to four hours post ingestion.[10] The primary excretion mechanism of gabapentin is through the renal system with a half-life of 5–7 hours. Clearance of the medication correlates to patient's creatinine clearance (CrCl) with guidelines recommending a maximum of 1400 milligrams daily for those with CrCl 30–59 milliliters/minute tapering down accordingly for reduction in CrCl.[11] Gabapentin has an extensive side effect profile which may lead to medication noncompliance or discontinuation. These side

effects include ataxia, dizziness, somnolence, nystagmus and peripheral edema.[12]

Pregabalin

Pregabalin is a similar drug to gabapentin approved by the FDA in 2004 with similar indication profile with the addition of fibromyalgia and painful diabetic neuropathy.[13,14] The mechanism of action of pregabalin is the same as that of gabapentin, however its absorption and metabolism are slightly different. Gabapentin is primarily absorbed in the small intestine while pregabalin is absorbed both in the small intestine and the proximal colon.[15] Furthermore, pregabalin has a lipophilic formulation which allows it to better cross the blood-brain barrier.[16] Dosing strengths range from 25 milligrams to 600 milligrams daily. Currently there is also a rapid release formulation of pregabalin that achieves peak plasma concentration in approximately one hour compared to eight hours with traditional formulation. Like gabapentin, excretion is through the renal system, with the recommendation of cutting dosing by 50% concentration for those with CrCl between 30–60 milliliters/minute with further down-titration according to CrCl.[17] Fibromyalgia dosing of pregabalin ranges from 300–450 milligram daily. Dose recommendation for diabetic neuropathy is typically 150–600 milligram daily with gradual ramp up as needed to maximal dosage.[18,19]

Choosing between the two medications depends on the patient's clinical presentation and type of pain being targeted. In a randomized clinical trial published in 2019, researchers explored if gabapentin or pregabalin was more optimal for treatment of chronic sciatica. Interestingly in the study of 18 patients, gabapentin was shown to be superior to pregabalin with greater reduction in leg pain intensity and less adverse events.[20] Another randomized controlled trial in 2021 explored using either 300 milligrams/day pregabalin or 800 milligrams/day gabapentin for 6 weeks to treat moderate to severe non-specific low back pain. They found pregabalin to be superior in pain reduction however gabapentin showed improvement of anxiety, insomnia and fatigue in a group of 64 patients.[21] In the United States pregabalin is a controlled substance and identified as a Schedule V drug whereas gabapentin is not controlled which may influence prescribing patterns.

Due to the widespread use of gabapentinoids and the varying practice patterns among physicians, we performed a retrospective chart review over a one-year period at a single institution. This study aimed to investigate the prescription patterns of gabapentin and pregabalin in a chronic pain clinic over a one-year period. By conducting a retrospective chart review, we sought to assess the prescribing patterns of

gabapentinoids to patients with chronic pain, providing insight into current prescribing trends and identifying opportunities for future research to further refine their role in pain management.

Methods

This study was a retrospective chart review conducted over a one-year period from May 1, 2023, to April 30, 2024. The study protocol received approval from the Institutional Review Board (IRB) at The University of Texas Health Science Center at Houston, ensuring that all procedures adhered to ethical standards for research involving human subjects. The review focused on patient records from four pain management physicians within the Department of Anesthesiology, Division of Pain Medicine.

The patient population of interest included those who were prescribed gabapentin or pregabalin for chronic pain during the study period. Inclusion criteria were patients who received at least one prescription of either gabapentin or pregabalin for the management of chronic pain. Exclusion criteria included patients with incomplete medical records or those who were prescribed these medications from other specialists for conditions unrelated to chronic pain. This approach ensured that the focus remained solely on the intended patient population.

Data Collection

Data was extracted from the electronic health records (EHR). All data was de-identified prior to analysis to maintain patient confidentiality. No advanced statistical tests were performed. Instead, the data was reported descriptively to provide a straightforward summary of the findings. The percentage of patients within each category, such as those prescribed gabapentin or pregabalin, was calculated and presented. This method allowed for a clear and accessible summary of the data.

Results

Over the one-year period from May 1, 2023, to April 30, 2024, a comprehensive review of electronic health records was conducted, encompassing a total of 2,395 patients who received care at the chronic pain clinic among four specialists. This review sought to identify the prevalence of gabapentin and pregabalin prescriptions among this

patient population, specifically focusing on their use in the management of chronic pain.

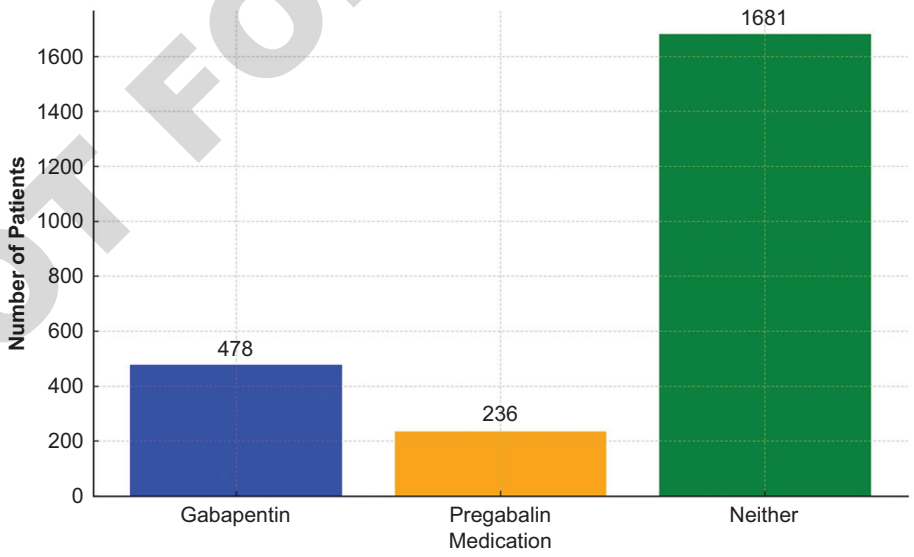
Of the 2,395 patients included in the study, 478 individuals, representing 19.96% of the total patient cohort, were prescribed gabapentin. In addition to gabapentin, 236 patients, accounting for 9.85% of the total patient population, were prescribed pregabalin during the same period.

When combining the patient populations prescribed either gabapentin or pregabalin, a total of 714 patients, or 29.81% of the total cohort, were on one of these two medications during the study period. This figure highlights that nearly one-third of all patients treated in this chronic pain clinic were managed with either gabapentin or pregabalin, emphasizing the critical role these medications play in the clinic's approach to pain management. The data is presented visually in Figure 1.

The data indicates a tendency for physicians to prescribe gabapentin more frequently than pregabalin within this patient population. This preference may be influenced by several factors, including physician experience and patient-specific considerations such as tolerability and effectiveness. Additionally, the fact that pregabalin is a controlled substance may also play a significant role, potentially leading physicians

FIGURE 1

Gabapentinoid use in the Chronic Pain Clinic



Blue: Represents the 478 patients (19.96% of the total cohort) who were prescribed Gabapentin.
Yellow: Represents the 236 patients (9.85% of the total cohort) who were prescribed Pregabalin.
Green: Represents the remaining patients who were on neither medication, making up the rest of the cohort (70.19%).

to favor gabapentin as a first-line treatment option for managing chronic pain. The substantial utilization of these medications underscores their importance in the management of chronic pain.

In summary, the analysis revealed that a significant proportion of patients in this chronic pain clinic were prescribed gabapentin or pregabalin, with gabapentin being more frequently utilized. These findings provide valuable insights into prescribing patterns and the reliance on these medications in chronic pain management within this clinical setting.

Discussion

Neuropathic pain is caused by a lesion or disease of the somatosensory system, including peripheral fibers and central neurons.[22] Neuropathic pain affects 7–10% of the general population.[23] Its pathophysiology is multifactorial, including imbalances between excitatory and inhibitory somatosensory signaling, alterations in ion channels, and variability in the way pain messages are modulated in the central nervous system.[22] The symptoms of neuropathic pain can vary based on the underlying condition and be chronic or intermittent. Common symptoms include dysesthesia, paresthesia, allodynia, hyperalgesia, loss of balance, muscle weakness, and thermal dysregulation.[24] Conditions such as cervical or lumbar radiculopathy, postherpetic neuralgia, diabetic polyneuropathy, postsurgical neuropathic pain, multiple sclerosis, chemotherapy-induced peripheral neuropathy, spinal cord injury, and stroke are common causes of neuropathic pain.[23]

Gabapentin and pregabalin are recommended as first-line treatments for peripheral and central neuropathic pain.[25] Studies have suggested patient benefit with the use of gabapentin or pregabalin in cervical and lumbar radiculopathy for improvement of neuropathic pain complaints. Two uncontrolled prospective trials involving 369 and 50 patients with chronic cervical radicular pain reported notable improvement of pain scores with pregabalin monotherapy by week 8 of treatment in patients.[26,27] Although there were no papers that discussed gabapentin monotherapy as a treatment for cervical radicular pain, a large, randomized study performed in 169 patients found that epidural steroid injections plus physical therapy and pharmacotherapy with gabapentin resulted in better outcomes than epidural steroids or conservative treatment as stand-alone therapies.[28] A retrospective study involving 107 patients with lumbar radiculopathy who underwent transforaminal epidural steroid injections compared the effects of pregabalin and gabapentin. The results showed that both medications effectively improved radicular pain, with no significant difference in pain reduction efficacy

between the two drugs.[29] In a dynamic simulation model in a hypothetical cohort of 1,000 patients suffering from painful diabetic peripheral neuropathy or postherpetic neuralgia, the effectiveness of pregabalin versus gabapentin was studied. It was found that both medications were effective in management in neuropathic pain, but there was a significant reduction in days with moderate to severe pain in patients taking pregabalin when compared to gabapentin.[30] These studies demonstrate that pregabalin and gabapentin are both effective in the management of peripheral and central neuropathic pain, though their efficacy may vary depending on the condition present.

Side Effects

Gabapentinoids have become integral in the treatment of many chronic pain conditions, yet their use is often accompanied by a range of side effects that warrant careful consideration. Although these medications are effective in managing chronic pain, their side effect profiles can limit their tolerability for some patients. Gabapentin is often associated with dizziness, somnolence, ataxia, nausea and weight gain, with dizziness and somnolence being among the most frequently reported.[31] A systematic review categorizing the side effects of gabapentinoids in the management of neuropathic pain identified that most of gabapentin's adverse effects were related to either the nervous system, such as dizziness, somnolence, and ataxia or psychiatric disorders, such as confusion and asthenia. This review also supports that although gabapentin effectively reduces neuropathic pain, the trade-off is a higher incidence of these side effects compared to placebo.[31] Additionally, a systematic review by Nwankwo et al noted myopathy and respiratory depression as less common atypical side effects of gabapentin.[32]

Similar to gabapentin, pregabalin has also been shown to cause dizziness, somnolence, and weight gain with additional side effects including impaired vision and euphoria, which may correlate with risk of abuse.[31] Pregabalin's side effects can be more pronounced than gabapentin, with dizziness and somnolence occurring most frequently. Although not as widely reported, pregabalin has also been linked with sexual disinhibition and increased libido as observed in a case study by Murphy et al.[33] The US Food and Drug Administration (FDA) has issued warnings that both gabapentin and pregabalin increase the risk of suicidal thoughts or behavior regardless of indication.[34] In a 2006–2013 population cohort study in Sweden, gabapentinoids were associated with increased suicidal behavior and deaths from suicide (hazard ratio 1.26; 95% CI, 1.20 to 1.32).[35] While gabapentin and pregabalin are effective agents for managing neuropathic pain, they come with a significant

side effect profile. Given this array of adverse symptoms including but not limited to dizziness, somnolence, weight gain, and suicidal ideation, clinicians should exercise careful consideration when treating patients with gabapentinoids.

Limitations

While this study highlighted the high prevalence of gabapentinoid use among patients, several limitations impacted the depth of the analysis. The data effectively captured the number of patients who visited the clinic over a one-year period and were prescribed either gabapentin or pregabalin. However, it did not provide information on the duration of gabapentinoid treatment, such as whether patients were receiving these medications for a short period or as part of a long-term management plan. Additionally, the study was unable to assess how well these medications were tolerated or how effective they were for individual patients, nor could it confirm whether patients were adhering to their prescribed regimens.

Gabapentinoids are commonly used for the treatment of neuropathic pain, but this study did not capture the specific reasons for their use, which may include various off-label indications. Without this information, it is difficult to discern the full scope of gabapentinoid prescribing patterns in the clinic population. Another limitation is that the study was conducted at a single site, which may affect the generalizability of the findings to other clinics or regions.

Future studies conducted across multiple sites would be valuable in providing a more comprehensive understanding of the prevalence and patterns of gabapentinoid use. Further analysis could also involve stratifying the data to identify trends in medication use, such as differences in prescribing practices based on patient demographics or clinical characteristics. This additional insight could help to clarify how gabapentinoids are being used in real-world clinical practice and inform better treatment strategies.

Conclusion

Gabapentin and pregabalin are among the most frequently prescribed medications for the management of neuropathic pain. This study demonstrates that nearly 30% of clinic patients were on one of these gabapentinoids at any given time. The widespread use of these medications underscores their perceived efficacy in addressing chronic pain, particularly when other treatment options may be limited. However, the high

prevalence of gabapentinoid prescriptions also necessitates a careful and balanced approach by physicians.

While gabapentin and pregabalin can provide substantial relief and improve the quality of life for patients suffering from neuropathic pain, they are not without risks. Common side effects include dizziness, sedation, and coordination problems, which can significantly impact patients' daily functioning. Other concerns include the association of gabapentinoids with suicidal ideation and behavior. Moreover, there is an increasing awareness of the potential for misuse and dependence, especially in vulnerable populations. These risks must be weighed against the benefits in each individual case. Physicians should consider the full spectrum of potential outcomes when prescribing these medications, including the possibility of adverse effects and the need for ongoing monitoring and patient education.

In light of these considerations, a judicious and personalized approach to gabapentinoid use is essential. Additionally, exploring alternative or adjunctive therapies could further optimize patient outcomes, ensuring that the benefits of treatment with gabapentinoids outweigh the risks. By adopting a thoughtful and patient-centered strategy, healthcare providers can better navigate the complexities of managing neuropathic pain with the use of gabapentinoids. ✤

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