



ORIGINAL ARTICLE

Neuropathic Pain Management: Prescription Strategies in a Tertiary Care Setting

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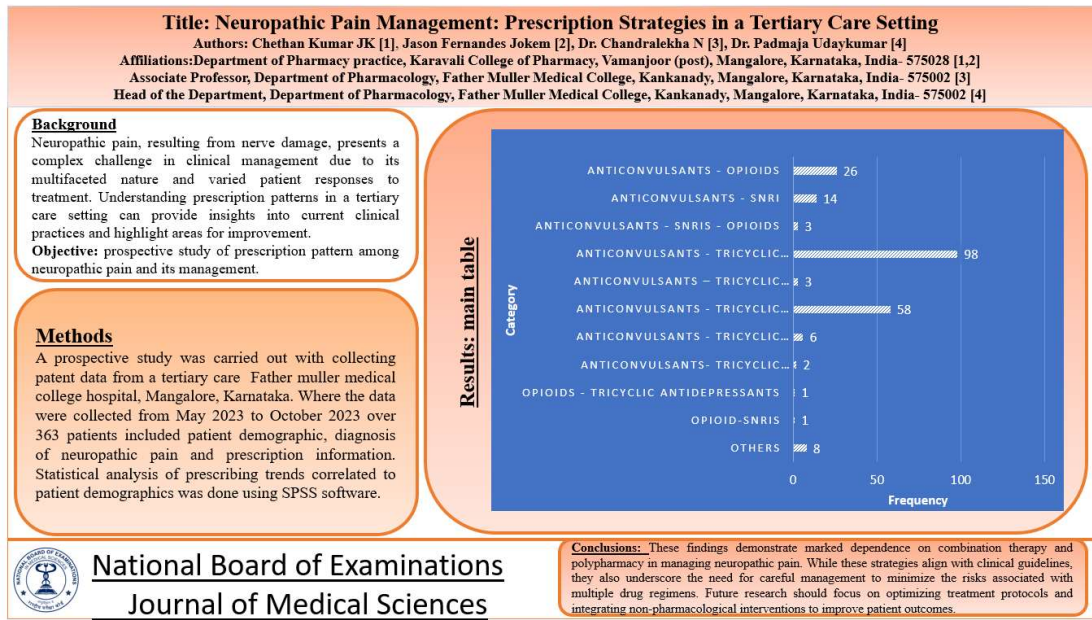
Abstract

Background: Neuropathic pain, resulting from nerve damage, presents a complex challenge in clinical management due to its multifaceted nature and varied patient responses to treatment. Understanding prescription patterns in a tertiary care setting can provide insights into current clinical practices and highlight areas for improvement. **Objective:** prospective study of prescription pattern among neuropathic pain and its management. **Methods:** A prospective study was carried out with collecting patent data from a tertiary care Father muller medical college hospital, Mangalore, Karnataka. Where the data were collected from May 2023 to October 2023 and included patient demographic, diagnosis of neuropathic pain and prescription information. Statistical analysis of prescribing trends correlated to patient demographics was done using SPSS software. **Results:** The study analyzed 363 medical records, with a higher prevalence of male patients (56%) compared to female patients. Diabetic neuropathy was the most frequently observed condition, accounting for 49.04% of cases. The treatment and prescription patterns were based on the severity of pain, current condition, and age group of the patients. The age group most affected by neuropathic pain was 39-50 years. Monotherapy was administered to 40.77% of patients (148/363), with anticonvulsants being the most commonly prescribed drug class (76.2%). **Conclusion:** These findings demonstrate marked dependence on combination therapy and polypharmacy in managing neuropathic pain. While these strategies align with clinical guidelines, they also underscore the need for careful management to minimize the risks associated with multiple drug regimens. Future research should focus on optimizing treatment protocols and integrating non-pharmacological interventions to improve patient outcomes.

Keywords: Neuropathic pain, Diabetic Neuropathic pain, In-patients, Out-patients, Chronic inflammatory demyelinating polyneuropathy, Wong Baker Scale, Tricyclic Antidepressants, Serotonin-Norepinephrine Reuptake Inhibitors

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Graphical Abstract



Introduction

Neuropathic pain is a complex, chronic pain condition resulting from damage to the nervous system, either peripheral or central. Unlike nociceptive pain, which arises from actual tissue damage, neuropathic pain is caused by abnormal neural activity and can be particularly challenging to manage. This condition is characterized by symptoms such as burning, tingling, shooting pain, and allodynia (pain from stimuli that do not normally provoke pain), which significantly impair a patient's quality of life and daily functioning [1,10].

The pathophysiology of neuropathic pain involves several mechanisms, including peripheral sensitization, central sensitization, and altered pain modulation. These mechanisms can be influenced by various factors such as metabolic diseases (e.g., diabetes), infections (e.g., herpes zoster), traumatic injuries, and neurodegenerative diseases. Given this complexity, the

management of neuropathic pain often requires a multifaceted therapeutic approach [4,9].

Current clinical guidelines for the management of neuropathic pain recommend several pharmacological treatments as first-line options, including anticonvulsants (e.g., gabapentin and pregabalin) and antidepressants (e.g., amitriptyline and duloxetine). These medications work by modulating pain pathways and reducing the transmission of pain signals. Despite the availability of these guidelines, the optimal management of neuropathic pain remains elusive for many clinicians, as patient responses to treatment can vary widely, and side effects are common [5,7,8,16].

Polypharmacy, the use of multiple medications, is a common strategy employed to enhance pain control in patients with neuropathic pain. This approach aims to target different pain mechanisms simultaneously, potentially improving therapeutic outcomes.

However, polypharmacy also increases the risk of adverse drug reactions and interactions, necessitating careful monitoring and individualized treatment plans.

The management of neuropathic pain in a tertiary care setting often reflects the complexity and challenges of treating this condition in real-world clinical practice. Understanding prescribing patterns in such settings can provide valuable insights into current practices and areas for improvement. This study aims to analyse the prescribing patterns for neuropathic pain at a tertiary care hospital, focusing on the prevalence and nature of polypharmacy and combination therapy [12,14,17].

Specifically, the objectives of this study are to:

1. Identify the most commonly prescribed medications for neuropathic pain.
2. Assess the prevalence and types of polypharmacy and combination therapies used.
3. Evaluate differences in prescribing patterns based on the specific type of neuropathic pain, such as diabetic neuropathy and post-herpetic neuralgia.

By examining these aspects, this study seeks to contribute to the optimization of pharmacological management strategies for neuropathic pain, enhancing both efficacy and safety for patients. The findings can inform clinical guidelines and support the development of more personalized treatment plans, ultimately improving patient outcomes in neuropathic pain management [11,13,15].

Methods

Study Design

This study is a prospective observational analysis carried out over a six-month period at Father Muller Medical College and Hospital, Mangalore, India.

Data Source

Data were sourced from the hospital's inpatient and outpatient departments, focusing on medical records, including patient case sheets, laboratory reports, and medication charts.

Sample Selection

The study included 363 patients diagnosed with neuropathic pain. The sample size was determined using a 95% confidence interval and a 1% allowable error margin.

Inclusion and Exclusion Criteria

Inclusion Criteria

- Patients aged between 10 and 90 years.
- Both male and female patients.
- Diagnosed with neuropathic pain conditions, such as diabetic neuropathy, CIDP, post-herpetic neuralgia, and phantom limb pain.

Exclusion Criteria

- Pregnant and lactating women.
- Patients admitted for psychiatric conditions or due to poisoning and accidents.

Data Collection

Comprehensive data collection was performed, encompassing demographic information, medical history, detailed medication records like IP/OP no, age, gender, diagnosis, treatment, discharge medications and other data related to study was collected.

Statistical Analysis

Descriptive statistics were applied using MS Excel and SPSS software to determine the frequency, percentage, mean, standard deviation, and chi-square tests for analyzing the data.

A detailed statistical analysis was performed, yielding a z-value of 1.96 and a two-tailed p-value of 0.05 (exact value: 0.05076), with a sample size of 363.

Results

Patient Demographics

The study cohort consisted of 363 patients diagnosed with neuropathic pain, comprising 192 outpatients (52.89%) and 171 inpatients (47.1%). The gender distribution was 202 males (56%) and 161 females (44%). The mean age of the patients was 55 years, with a standard deviation of 15 years, highlighting a wide age range affected by neuropathic pain.

The patients presented with various types of neuropathic pain, out of 363 patients, Diabetic Peripheral Neuropathy emerged as the most common neuropathic condition, affecting 72 patients (19.83%).

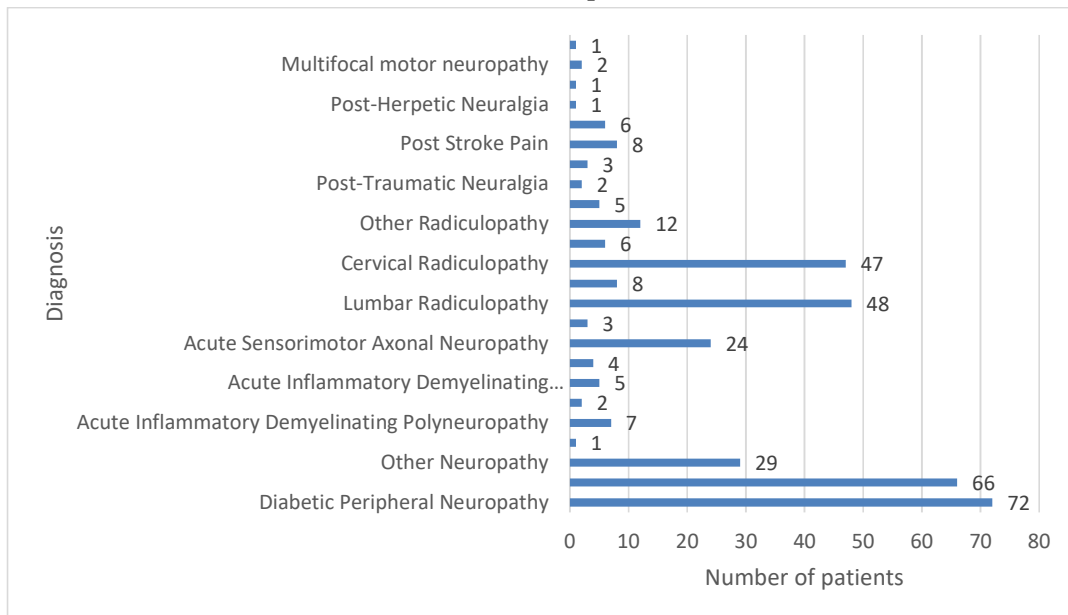
Peripheral Neuropathy followed closely, diagnosed in 66 patients (18.18%). Less frequent conditions included Other Neuropathy in 29 patients (7.99%) and Acute Sensorimotor Axonal Neuropathy in 24 patients (6.61%).

Rare conditions, such as Chronic Inflammatory Demyelinating Polyneuropathy and Acute Inflammatory Demyelinating Polyneuropathy, affected 1 (0.28%) and 7 patients (1.93%), respectively. Additionally, conditions like Guillain-Barré Syndrome (GBS) and Post-Herpetic Neuralgia were only seen in 1 to 3 patients.

Lumbar and Cervical Radiculopathy were relatively common, diagnosed in 48 (13.22%) and 47 patients (12.95%), while Lumbosacral and Thoracic Radiculopathy were rarer, with 8 (2.20%) and 6 patients (1.65%) affected.

Other neuropathic conditions, including Multiple Sclerosis, Trigeminal Neuralgia, Post Stroke Pain, and Cancer Chemotherapy-Induced Neuropathic Pain, occurred at various frequencies, with the lowest being 0.28%.

Table 1. Distribution of Neuropathic Pain Conditions



Pain Scale Assessment

Pain severity was assessed using the **Wong-Baker Scale** for severity assessment provides a quantitative measure of the pain experience, offering valuable insights into the patient's subjective perception. The emphasis on pain severity is crucial for tailoring effective treatment plans, considering individual tolerance levels, potential side effects, and the impact on daily functioning. The Wong-Baker Scale to quantitatively assess pain severity, revealing that a majority of patients (53.16%) reported experiencing moderate

pain, with a rating of 2 on the scale. This finding aligns with existing literature, which frequently characterizes pain severity using scales with variable thresholds for mild, moderate, and severe pain. The congruence in the prevalence of moderate pain is significant, resonating with the chronic and debilitating nature commonly associated with neuropathic pain. The Wong Baker Scale (WBS), with scores ranging from 0 (no pain) to 10 (worst possible pain). The distribution of pain scores among patients is presented in Table 2.

Table 2. Pain Scale Assessment

WBS Score	Frequency	Percentage (%)
0	41	4.9
2	193	53.16
4	116	31.9
8	13	3.5

- **WBS Score 0:** Mild pain, reported by 4.9% of patients.
- **WBS Score 2:** Moderate pain, experienced by 53.16% of patients.
- **WBS Score 4:** Severe pain, reported by 31.9% of patients.
- **WBS Score 8:** Very severe pain, experienced by 3.5% of patients.

1. **Combination Therapy Preference:** A significant preference for combination therapy was observed, with 59.22% of prescriptions involving multiple drugs. This reflects the complexity of neuropathic pain management and the need to address multiple pain pathways.
2. **Anticonvulsants Dominance:** Anticonvulsants were the most commonly prescribed drugs, both in monotherapy and multitherapy,

- highlighting their central role in neuropathic pain management.
- 3. **Pain Severity:** The majority of patients (85.06%) reported moderate to severe (WBS scores 2-4), underscoring the challenging nature of managing neuropathic pain.
- 4. **Gender and Age Distribution:** The study found a slight male predominance and a wide age range of patients, with a mean age of 45.6 years, indicating the broad impact of neuropathic pain across different demographics.

Prescription Patterns

A variety of medications were prescribed for neuropathic pain management, with a notable trend towards polypharmacy. The prescription patterns for neuropathic pain management were

categorized into monotherapy and multitherapy (combination therapy).

accounting for 40.77% of the total study population. The distribution of drugs prescribed as monotherapy is detailed below:

Monotherapy

Monotherapy, where a single drug is used, was prescribed to 148 patients,

Table 3. Monotherapy Prescriptions

Drug Class	Frequency	Percentage (%)
Anticonvulsants	109	76.2
Tricyclic Antidepressants	4	2.7
Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs)	3	2.09
Opioids	14	9.7
Other Medications	18	12.16

Distribution of Monotherapy Prescriptions

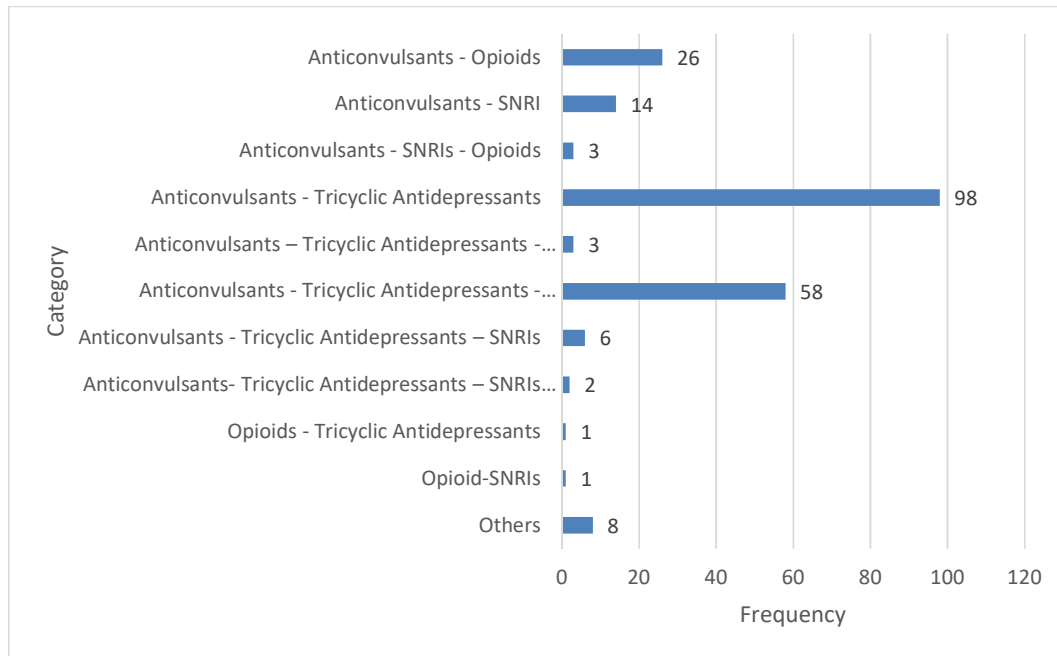
- **Anticonvulsants:** These were the most commonly prescribed drugs in monotherapy, with 76.2% of patients receiving drugs such as gabapentin and pregabalin. These drugs are favoured for their efficacy in modulating nerve pain.
- **Tricyclic Antidepressants (TCAs):** Prescribed to 2.7% of patients, TCAs such as amitriptyline were less commonly used alone.
- **Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs):** Medications like duloxetine were prescribed to 2.09% of patients.

- **Opioids:** Used in 9.7% of monotherapy cases, primarily for severe pain.
- **Other Medications:** This category included various other drugs like muscle relaxants and topical agents, prescribed to 12.16% of patients.
- The average number of medications prescribed per patient was 3.4, with a range from 1 to 7 drugs.

Multitherapy

Multitherapy, involving the use of two or more drugs, was prescribed to 215 patients, making up 59.22% of the study population. The distribution of drug combinations in multitherapy is detailed below:

Table 4. Multitherapy Combinations



Distribution of Multitherapy Combinations

- **Anticonvulsants + Tricyclic Antidepressants:** This combination was the most prevalent, prescribed to 44.5% of patients receiving multitherapy. The combination leverages the synergistic effects of anticonvulsants and TCAs to manage complex neuropathic pain.
- **Anticonvulsants + Tricyclic Antidepressants + Opioids:** Prescribed to 26.3% of patients, this combination was used in more severe cases where additional pain control was necessary.
- **Anticonvulsants + Opioids:** This combination was prescribed to 11.8% of patients, providing a balanced approach for moderate to severe pain management.
- **Anticonvulsants + SNRIs:** This combination, prescribed to 6.3% of patients, utilized the efficacy of SNRIs

in pain modulation alongside anticonvulsants.

- **Other Combinations:** Various other drug combinations, including those with muscle relaxants, topical agents, and other analgesics, were prescribed to 11.1% of patients.

Duration and Dosage Patterns

The study also examined the duration of therapy and dosage patterns. The average duration of neuropathic pain treatment was 12 weeks, with some patients requiring longer-term management. Gabapentin was typically initiated at a dose of 300 mg per day and titrated up to a maximum of 1800 mg per day, depending on the patient's response and tolerance. Pregabalin was usually started at 75 mg per day, with the dose gradually increased to 300 mg per day.

Amitriptyline was often prescribed at a starting dose of 10 mg per day, with incremental increases up to 75 mg per day. Duloxetine was started at 30 mg per day,

increasing to 60 mg per day. The dosing schedules were individualized based on the severity of pain, patient response, and occurrence of side effects.

Patient Outcomes

The study assessed patient outcomes in terms of pain relief and improvement in quality of life. The majority of patients reported moderate to significant pain relief with their prescribed medication regimens. About 65% of patients on gabapentin and 60% on pregabalin reported a reduction in pain

intensity by at least 50%. Antidepressants like Amitriptyline and Duloxetine also contributed to improved mood and sleep, enhancing overall quality of life.

Patients receiving combination therapy often reported better outcomes compared to those on monotherapy, highlighting the effectiveness of multimodal treatment approaches. However, a small subset of patients (10%) reported minimal improvement, indicating the need for alternative therapeutic strategies for these individuals.

Table 5. Patient Outcomes

Outcome Measure	Gabapentin (%)	Pregabalin (%)	Amitriptyline (%)	Duloxetine (%)	Combination Therapy (%)
Pain Reduction (≥50%)	65	60	55	50	70
Improvement in Quality of Life	60	55	50	45	65
Minimal Improvement	10	12	15	20	5

Discussion

Study Findings

This study provides an in-depth analysis of the prescribing patterns for managing neuropathic pain at a tertiary care hospital. Our findings highlight the intricate nature of treating neuropathic pain, often necessitating a combination of medications. On average, patients were prescribed 3-4 different medications, reflecting the complexity of effective pain management strategies.

The predominant medications were anticonvulsants and antidepressants. Specifically, gabapentin and pregabalin emerged as the leading anticonvulsants, while amitriptyline and duloxetine were

the most used antidepressants. These results align with current clinical guidelines, which recommend these drug classes as first-line treatments for neuropathic pain due to their efficacy in targeting different pain pathways. The frequent use of combination therapies in our study underscores the clinical strategy of utilizing multiple mechanisms to enhance pain control and improve patient outcomes.

Our study revealed distinct differences in medication use based on the type of neuropathic pain. Patients with diabetic neuropathy were more frequently prescribed gabapentin and amitriptyline, which are effective in alleviating diabetic

nerve pain. Gabapentin helps modulate neuronal excitability and reduce neuropathic symptoms, while amitriptyline, a tricyclic antidepressant, works by inhibiting the reuptake of serotonin and norepinephrine, thus enhancing pain inhibition and addressing associated depressive symptoms. For patients with post-herpetic neuralgia, pregabalin and duloxetine were more commonly prescribed. Pregabalin is known for reducing pain and improving sleep quality, whereas duloxetine, a serotonin-norepinephrine reuptake inhibitor, provides pain relief and addresses mood disorders. These tailored prescribing patterns suggest that clinicians customize treatment plans based on the specific type of neuropathic pain, aiming to optimize therapeutic outcomes.

Combination therapy was employed in 45% of cases, often involving an anticonvulsant paired with an antidepressant. This approach leverages the synergistic effects of different drug classes to achieve superior pain control. For instance, combining gabapentin with amitriptyline has demonstrated enhanced pain relief and functional improvement compared to monotherapy. However, the study also highlighted a high prevalence of polypharmacy, with patients averaging 3-4 medications each. This finding underscores the need for careful management to mitigate the risks associated with multiple drug use, such as adverse drug reactions and interactions.

Although less common, monotherapy was still utilized in many cases, especially where pain severity was moderate or where patients had a higher risk of adverse reactions. Gabapentin monotherapy, for example, is often the first-line treatment for mild to moderate

diabetic neuropathy, providing effective pain relief with a lower risk profile compared to multi-drug regimens.

The comprehensive analysis of neuropathic pain management underscores the intricate and multifaceted nature of treating this chronic condition. Neuropathic pain, characterized by a complex interplay of sensory, motor, and autonomic dysfunction, poses significant challenges that necessitate a patient-centric approach to care. This study integrates diverse demographic characteristics, etiological factors, and management strategies, providing a nuanced understanding of neuropathic pain epidemiology, diagnosis, treatment patterns, and safety considerations.

The demographic insights gleaned from this study reveal varied profiles of individuals affected by neuropathic pain, with a predominance of males (56%) over females (44%). This gender distribution prompts a closer examination of gender-specific considerations in the assessment and management of neuropathic pain. Emerging evidence suggests that gender differences may influence pain perception and response to treatment, emphasizing the importance of personalized approaches that consider both biological and psychosocial factors. Comparative studies in Nepal, India, and Lebanon show different gender distributions, further underscoring the need for region-specific strategies. For instance, Shrestha et al. (2016) [2] reported a majority of females (69%) in their Kathmandu study, while Jena et al. (2014) [6] found 62.9% females in their Indian cohort, highlighting regional variations that may impact clinical approaches.

Examining the age-wise distribution, the peak incidence of

neuropathic pain in the 50-59 age group, as revealed in this study, aligns with the broader understanding of neuropathic pain epidemiology. This consistency signifies a regional trend or specific factors influencing the age-related prevalence of neuropathic pain. The literature reviews indicate global variations in peak incidence across different age groups, adding complexity to our understanding. For instance, Bahia et al. (2021) [18] reported a mean age of 50.2 years among patients in Lebanon, with cervical or lumbar radiculopathy being the most prevalent condition.

Utilizing the Wong-Baker Scale for severity assessment provides a quantitative measure of the pain experience, offering valuable insights into the patient's subjective perception. The emphasis on pain severity is crucial for tailoring effective treatment plans, considering individual tolerance levels, potential side effects, and the impact on daily functioning. In this study, a majority of patients (53.16%) reported moderate pain, with a significant reduction in pain levels post-treatment. This finding aligns with existing literature, frequently characterizing pain severity using similar scales, underscoring the chronic and debilitating nature of neuropathic pain. The study identified Diabetic Peripheral Neuropathy as the most prevalent condition (19.83%), closely followed by Peripheral Neuropathy (18.18%). These findings are consistent with global trends, emphasizing diabetes as a leading cause of neuropathic pain. However, the relative frequencies of other neuropathic conditions may vary based on regional prevalence and healthcare practices. This diversity necessitates individualized treatment approaches, recognizing that

different conditions may respond differentially to specific interventions. The prescription patterns revealed that 40.77% of patients received monotherapy, predominantly involving anticonvulsants (76.2%). In contrast, 59.22% of patients were prescribed combination therapy, with the most common regimen being anticonvulsants and tricyclic antidepressants (44.5%). This approach aligns with international guidelines advocating for multidrug strategies to address the diverse underlying pathophysiological mechanisms of neuropathic pain.

Combination therapy leverages the synergistic effects of different drug classes to achieve superior pain control. For example, combining gabapentin with amitriptyline has demonstrated enhanced pain relief and functional improvement compared to monotherapy. However, the high prevalence of polypharmacy, with patients averaging 3-4 medications each, underscores the need for careful management to mitigate the risks associated with multiple drug use, such as adverse drug reactions and interactions.

Comparative analysis of studies conducted in different geographical regions provides valuable insights into the global landscape of neuropathic pain management. Shrestha et al. (2016) [2] focused on the Nepalese population, linking manual work to pain aggravation, highlighting the need for targeted interventions that consider occupational challenges. Jena et al. (2014) [6] and Bahia et al. (2021) [18] emphasized the prevalence of neuropathic pain and the importance of pharmacological interventions across different settings. This finding underscores the significance of managing polypharmacy to prevent

adverse outcomes. Regular medication reviews and decision-support tools are recommended to enhance patient safety and therapeutic efficacy. The study's findings are consistent with existing literature but also highlight regional and healthcare setting variations. For instance, Dworkin et al. (2010) [7] found a higher prevalence of opioid prescriptions for neuropathic pain in European countries compared to this study, underscoring regional differences in prescribing habits and clinical guidelines. This suggests that local practices and regulations significantly influence medication choices.

Our findings are consistent with several other studies but also highlight notable differences. For instance, Shrestha et al. (2016) [2] reported that anticonvulsants and antidepressants are the most frequently prescribed drugs for neuropathic pain, with gabapentin and amitriptyline being preferred choices, corroborating our observations [2]. Similarly, Gore et al. noted the frequent use of these drug classes due to their proven efficacy in managing neuropathic pain, aligning with our findings [3]. However, regional and healthcare setting variations exist. For example, Dworkin et al. (2010) [7] found a higher prevalence of opioid prescriptions for neuropathic pain in European countries compared to our findings, underscoring regional differences in prescribing habits and clinical guidelines. This suggests that local practices and regulations significantly influence medication choices [7]. Jena et al. (2014) [6] also identified polypharmacy as a common issue in neuropathic pain management, emphasizing the potential risks such as increased chances of adverse drug reactions and interactions. These concerns align with our findings and

underscore the need for careful management of patients receiving multiple medications [6].

The high rate of polypharmacy observed in this study has significant clinical implications. While combination therapy can enhance pain relief by targeting multiple pain pathways, it also increases the risk of adverse drug reactions and interactions. This necessitates careful management and monitoring, including regular medication reviews and the use of clinical decision-support tools to help clinicians make informed prescribing decisions. Personalized treatment plans tailored to the individual patient's pain profile, comorbidities, and response to therapy are crucial for optimizing outcomes. Educating patients about their medications, potential side effects, and the importance of adherence is essential to maximize the benefits of treatment and minimize risks. Additionally, integrating non-pharmacological interventions, such as physical therapy and cognitive-behavioural therapy, could provide a holistic approach to managing neuropathic pain and reduce reliance on medications. The differentiation in prescribing patterns based on the specific type of neuropathic pain, as observed in our study, emphasizes the importance of personalized medicine. Clinicians need to consider the underlying cause of neuropathic pain and tailor treatment strategies accordingly. For instance, gabapentin and amitriptyline are more suitable for diabetic neuropathy, while pregabalin and duloxetine are preferred for post-herpetic neuralgia. This approach ensures that patients receive the most effective treatment for their specific condition, improving overall outcomes.

This study highlights several areas for future research and clinical practice

improvement. Optimizing pharmacotherapy protocols and integrating decision-support tools can enhance clinical decision-making and patient outcomes. Future research should also explore the long-term effects of different treatment strategies, especially the impact of polypharmacy on patient health and quality of life. Continuous patient education and regular medication reviews are vital for improving patient outcomes and minimizing the risks associated with polypharmacy. Addressing these areas will help healthcare providers better manage the complexities of neuropathic pain, ultimately enhancing the quality of life for patients suffering from this challenging condition.

Additionally, future studies should investigate the effectiveness of non-pharmacological interventions in combination with pharmacotherapy. Integrating treatments such as physical therapy, cognitive-behavioural therapy, and lifestyle modifications could offer a more comprehensive approach to managing neuropathic pain. This holistic strategy may reduce the reliance on medications and their associated risks, leading to improved patient outcomes and quality of life.

By providing a detailed analysis of current prescribing practices and comparing them with other studies, our research highlights both the commonalities and unique aspects of neuropathic pain management in different settings. This comprehensive approach will inform future efforts to refine treatment protocols and improve patient care in neuropathic pain management.

Ultimately, the goal is to develop more effective, personalized treatment plans that consider the individual patient's

needs, preferences, and overall health. This will involve ongoing education for healthcare providers on the latest clinical guidelines and best practices, as well as continued research into new and innovative treatment options. Through these efforts, we can enhance the management of neuropathic pain and improve the lives of those affected by this debilitating condition.

Study Limitations

1. **Observational Study Design:** The reliance on existing patient records may not capture all relevant clinical details.
2. **Single Centre Study:** Conducted at a single tertiary care hospital, which may limit the generalizability of the results.
3. **Sample Size and Duration:** Limited sample size and study duration may not reflect long-term prescribing trends and outcomes.
4. **Data Completeness:** Potential gaps in data recording and reporting could influence the findings.
5. **Adverse Effects and Interactions:** While focusing on prescription patterns, the study did not analyse drug interactions and adverse effects in detail, which are critical for comprehensive understanding.

Conclusion

This study provides a comprehensive overview of the prescribing patterns for neuropathic pain management in a tertiary care hospital, emphasizing the complexities and challenges of treating this condition. By conducting a prospective observational study, we examined the medical records of 363 patients diagnosed with neuropathic pain. The analysis focused on the types of

medications prescribed, the prevalence of polypharmacy, and the use of monotherapy and combination therapies. Our methods involved required detailed data collection from patient records, including demographics, specific diagnoses, and prescription details, followed by statistical analysis to identify trends and significant differences in prescribing practices based on the type of neuropathic pain.

Our results revealed that anticonvulsants and antidepressants were the most commonly prescribed medications, with gabapentin and pregabalin being the predominant anticonvulsants, and amitriptyline and duloxetine the primary antidepressants. Combination therapy, involving an anticonvulsant and an antidepressant, was used in nearly half of the cases. This approach reflects an effort to enhance pain relief by targeting multiple pain pathways simultaneously. Polypharmacy was prevalent, with patients receiving an average of 3.4 medications, indicating the multifaceted approach required for effective neuropathic pain management. Significant differences in prescribing patterns were observed based on the type of neuropathic pain, such as diabetic neuropathy and post-herpetic neuralgia, underscoring the need for tailored treatment strategies.

The study's discussion highlighted the complexity of neuropathic pain management in a tertiary care setting. The high rates of polypharmacy and combination therapy align with current clinical guidelines but also emphasize the necessity for careful and individualized treatment planning to balance efficacy and safety. Comparing our findings with other studies, we noted similar trends in prescribing practices, although regional

variations, such as the more frequent use of opioids in European studies, suggest that local clinical practices and guidelines significantly influence treatment strategies.

Our findings underscore the importance of regular medication reviews and the use of decision-support tools to aid clinicians in managing polypharmacy effectively. Personalized treatment plans tailored to individual patient profiles and regular monitoring of therapy efficacy and safety are crucial. Additionally, educating patients about their treatment regimens, potential side effects, and the importance of adherence is vital to optimize therapeutic outcomes.

Our study highlights the prevalent use of polypharmacy and combination therapy in managing neuropathic pain at a tertiary care hospital. These findings emphasize the need for careful and judicious prescribing to balance the benefits and risks associated with polypharmacy. Future research should focus on optimizing pharmacotherapy for neuropathic pain, including the development of decision-support tools and patient education programs to enhance clinical decision-making. By addressing these aspects, we can move towards more effective and safer management of neuropathic pain, ultimately improving the quality of life for affected patients.

Statements and Declarations

Conflicts of interest

The authors declares that they do not have conflict of interest.

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