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Exploring Prescription Trends and Clinical Decision - Making in Neurology Department of a Tertiary Care Hospital

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Abstract

Background:
Neurological disorders are a major cause of morbidity, mortality, and disability, adversely affecting patients' quality of life. Common disorders include epilepsy, migraine, neuropathic pain, cervical and lumbar radiculopathy, and diabetic neuropathy. Prescription pattern studies help assess rational drug use, improve treatment outcomes, and ensure safe and effective therapy. Hence, this study was conducted to evaluate prescription trends and clinical decision-making in a tertiary care hospital.

Method:
A prospective observational study was conducted for one month in the Neurology OPD of a tertiary care hospital. Around 260 patients (13–91 years), regardless of gender, were included. Data on demographics, diagnosis, and prescribed drugs were collected from prescriptions, case sheets, and patient interviews.

Results:
A total of 260 patients attending the Neurology Department of Princess Esra Hospital were evaluated in this study. The majority of patients were middle-aged adults, with females having the highest frequency. The most prevalent presenting problems were neck and lower back pain. The most common diagnosis identified were cervical and lumbar radiculopathy. The diagnostic examination mostly consisted of spinal imaging investigations. The prescribing pattern demonstrated widespread use of neuropathic drugs, analgesics, and supportive medications, indicating a high prevalence of pain-related neurological and musculoskeletal illnesses in the research group.

Conclusion:
This study found that radiculopathy and pain-related disorders were the most common neurological conditions. Neuropathic and analgesic drugs were widely prescribed. The study highlights the importance of rational prescribing and individualized treatment for better patient outcomes.

Keywords: Prescription, Neurological disorders, Pain, Cervical radiculopathy, Migraine, Diabetic neuropathy.

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Introduction

Drug prescription plays a vital role in medical science by ensuring appropriate drug selection, dosage, and treatment effectiveness. Rational prescribing improves patient care and minimizes adverse effects and resource wastage. Irrational drug use remains a major issue worldwide and can negatively affect patient health outcomes.[1] Prescription pattern studies are conducted to evaluate drug utilization and improve healthcare practices. These studies also help assess prescribing quality using WHO/INRUD prescribing indicators.[2] The neurology department deals with diseases affecting the brain, spinal cord, and nervous system. Diagnosis of neurological disorders involves clinical evaluation and investigations such as MRI, CT scans, and nerve studies.[3] Neurological disorders are major contributors to morbidity, mortality, and disability worldwide. Common disorders include epilepsy, stroke, migraine, dementia, neuropathic pain, cervical and lumbar radiculopathy, and diabetic neuropathy.[4] These disorders significantly reduce the quality of life among patients of different age groups. Understanding disease prevalence and treatment patterns is important for evidence-based decision-making.[5] Prescription pattern monitoring studies evaluate prescribing, dispensing, and administration of medications. Polypharmacy, excessive antibiotic use, and inappropriate medication practices remain challenges in healthcare systems.[6] Proper monitoring of prescriptions can improve treatment effectiveness and reduce medication misuse. The study aims to evaluate prescription trends in neurological disorders and assess rational drug use in clinical practice.[7]

Aim and Objectives

The purpose of this study was to assess prescribing trends and clinical decision-making methods in patients with neurological diseases treated in a tertiary care hospital. The study also aimed to evaluate illness severity, patient awareness, related comorbidities, and their impact on treatment outcomes and quality of life.

Methodology

Study Design: A prospective and observational study

Study Site: The study was carried out in the Neurology outpatient department of Princess Esra Hospital.

Study Duration: 1 Month

Sample Size: 260 patients analyzed.

Data Collection: A standardized data collection form was used to collect prospective data, which included patient demographics, diagnosis, prescribed drugs, dosage, frequency, and duration of treatment.

Inclusion Criteria

- Patients aged 13 to 91 visit the Neurology outpatient department (OPD) during the research period.
- Patients with common neurological illnesses, including strokes, migraines, epilepsy, lumbar radiculopathy, cervical radiculopathy, dementia, and diabetic neuropathy.
- Patients who agreed to participate in the trial and gave informed consent.

Exclusion Criteria

- Patients aged under 13 or above 91.
- Pregnant and lactating women.
- Patients with severe systemic illnesses or significant medical problems that may interfere with study results.
- Patients who declined to participate.

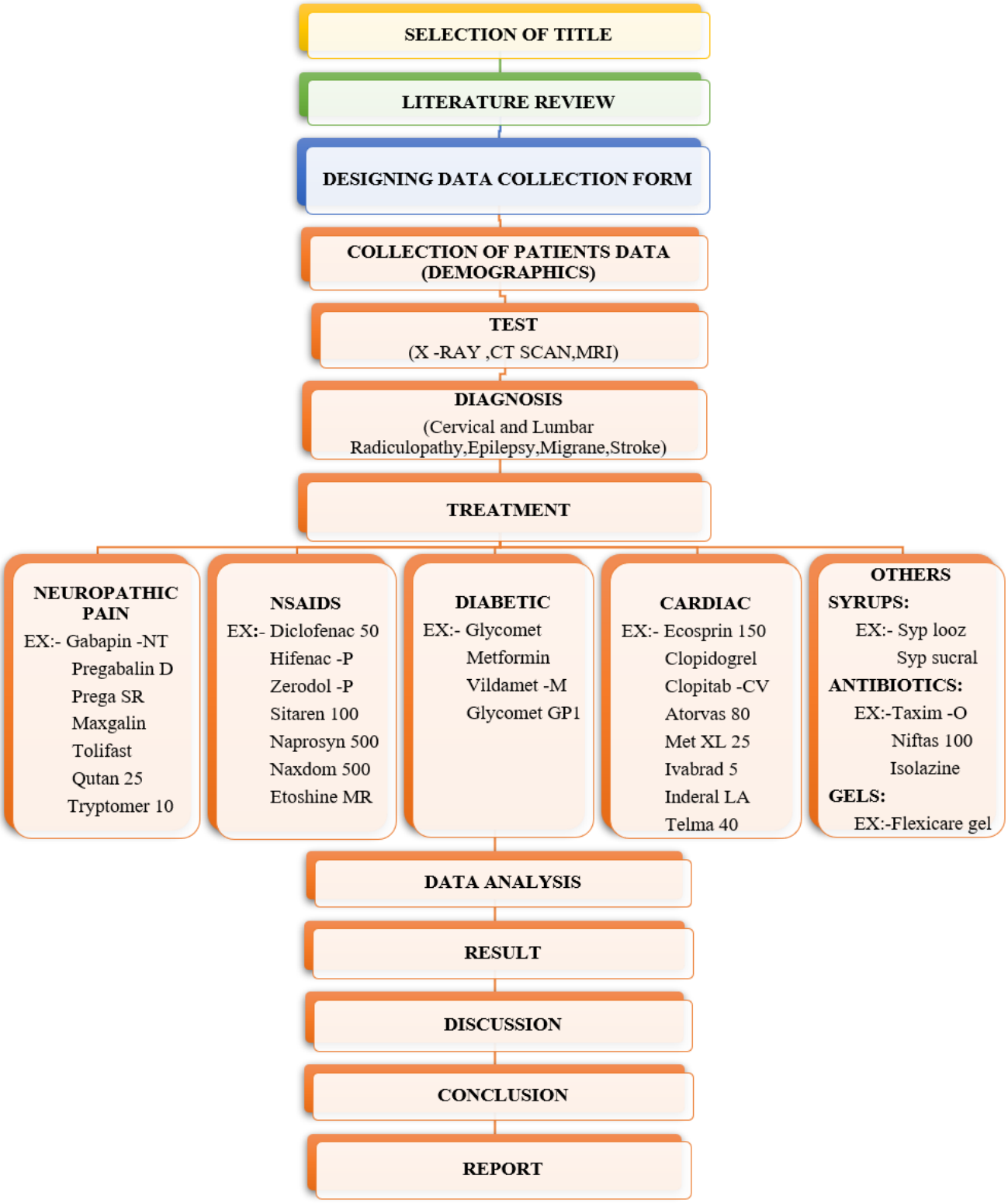
Plan of Work

Selection of Title: Evaluation of prescribing patterns in neurological disorders.

Literature Review: Review of published articles, textbooks, and clinical guidelines.

Designing Data Collection Form: Preparation of a structured form to collect patient and prescription details.

Collection of Patient Data (Demographic): Collection of demographic, diagnosis, and treatment information from patients with neurological disorders.



Results

A total of 260 patients visited the Neurology department of Princess Esra Hospital. The study analyzed patient demographics, clinical symptoms, diagnostic examinations, and prescribing trends. The study found a significant prevalence of neurological and musculoskeletal problems, with pain drugs being the most commonly prescribed treatments.

Demographic Details of Study Participants

Table 1: Age Wise Distribution

Age Interval	No. of Patients
13-32	48
33-52	111
53-72	91
73-92	10

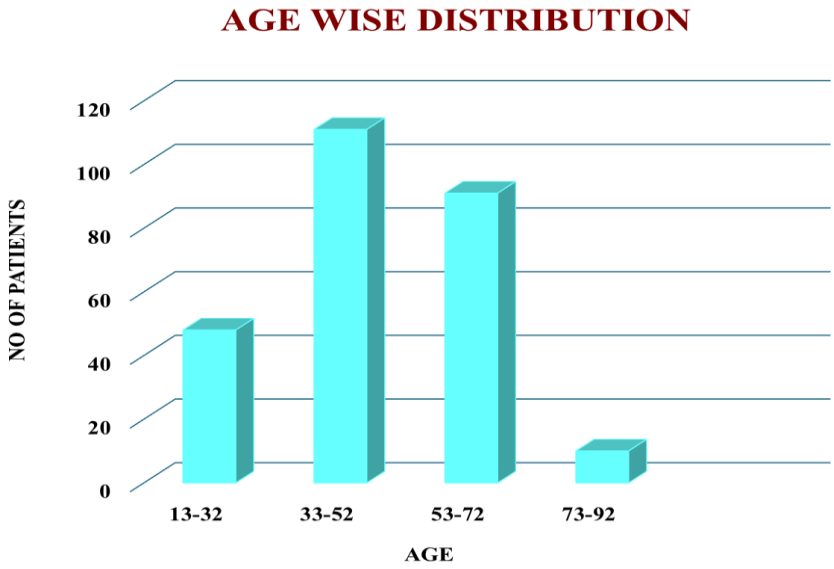


Figure 1: Age wise distribution of patients

The above bar graph depicts the age distribution of the patients included in the study. Among the various age groups, the 33-52 age group had the most patients (111), followed by the 53-72 age group (91). There were 48 patients in the 13-32 age group, and only 10 patients in the 73-92 age group. Overall, the graph shows that middle-aged adults comprised the majority of the study population.

Gender Wise Distribution

Table 2: Gender wise distribution

Gender	No. of Patients
Male	94
Female	166

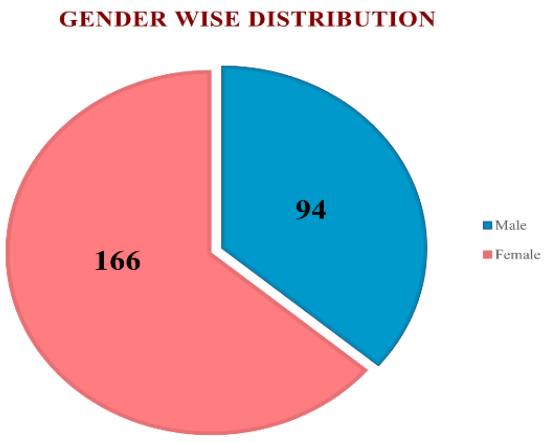


Figure 2: Gender wise distribution of patients

The above pie chart depicts the gender distribution of 260 patients included in the study. Female patients showed a higher frequency (n=166) than male patients (n=94), indicating a significant female predominance in the study population.

Distribution Based on Symptoms

Table 3: Symptoms Wise Distribution of patients

Symptoms	No. of Patients
Neck pain	110
Low back pain	95
Headache	15
Giddiness	133
Numbness	17
Seizures	10

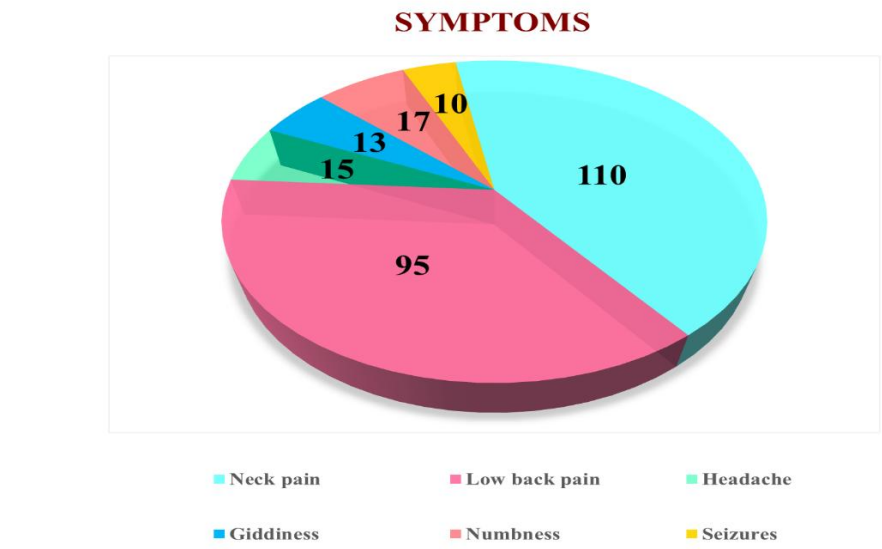


Figure 3: Distribution of patients based on symptoms

The above pie chart depicts the distribution of patients based on presenting symptoms. Neck pain was the most common complaint reported in 110 patients, followed by low back pain in 95. Lower frequencies were observed for numbness (n = 17), headache (n = 15), giddiness (n = 13), and seizures (n = 10). The findings show that musculoskeletal and spine-related symptoms were the most common clinical presentations among the study population.

Diagnosis Wise Distribution of Patients

Table 4: Diagnosis Wise Distribution of patients

Diagnosis	No. of Patients
Cervical radiculopathy	90
Lumbar radiculopathy	77
Epilepsy	30
Migrane	25
Stroke	18
Frozen shoulder	15
Others	12

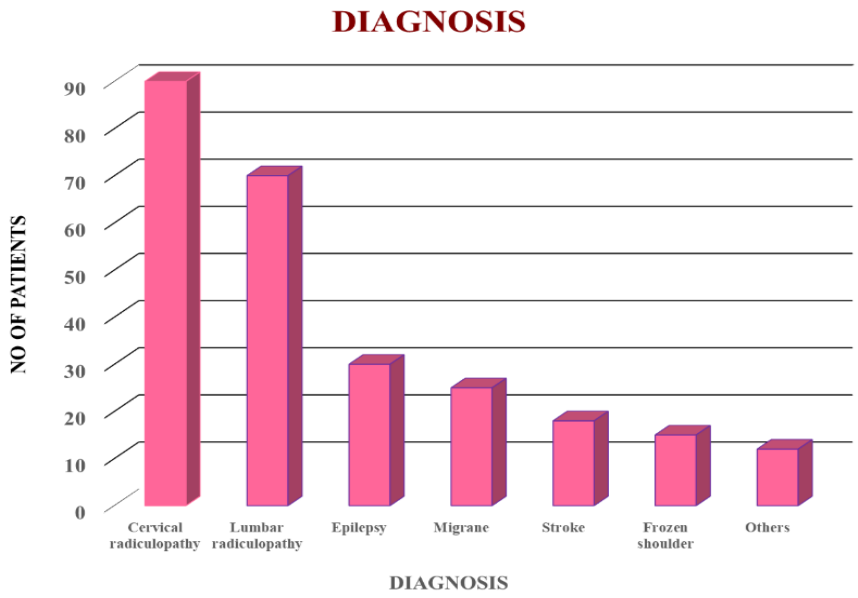


Figure 4: Diagnosis wise Distribution of patients

The above bar graph depicts the distribution of patients in the study based on their diagnosis. The most commonly diagnosed condition was cervical radiculopathy (n = 90), followed by lumbar radiculopathy (n = 77). Epilepsy (n = 30) and migraine (n = 25) had moderate frequencies, while stroke (n = 18), frozen shoulder, and other conditions were less common. The findings demonstrate the prevalence of radiculopathy-related disorders in the study population

Diagnostic Tests

Table 5: Diagnostic Test Wise Distribution of patients

Tests	No. of Patients
X – ray cervical spine	90
MRI lumbar spine	70
EEG	35
MRI Brain	30
X – ray shoulder	25
Others	10

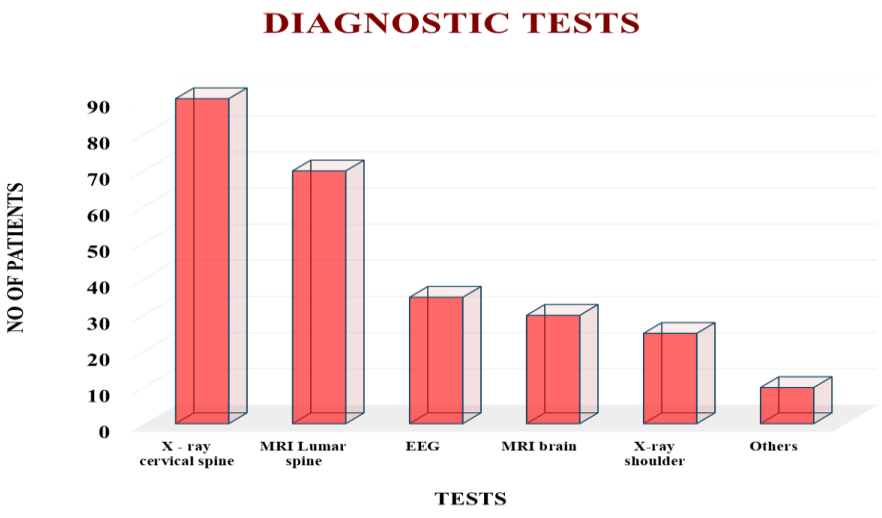


Figure 5: Diagnostic tests wise distribution of patients

The above bar graph depicts the distribution of patients based on diagnostic tests performed. X-ray cervical spine was the most commonly performed test in 90 patients, followed by MRI lumbar spine in 70. EEG and MRI brain scans were performed on 35 and 30 patients, respectively, while 25 patients had their shoulders X-rayed. Other diagnostic tests were performed on 10 patients. The graph shows that spinal imaging investigations were primarily used for patient evaluation.

Prescribed Drug Classification

Table 6: Distribution of prescribed drug classes among patients

Classes of Drugs	No of Patients
Antipsychotics	220
Pain	195
Supplements	95
PPI's	78
Cardiovascular	46
Antibiotics	42
Antidiabetic	30
Others	21

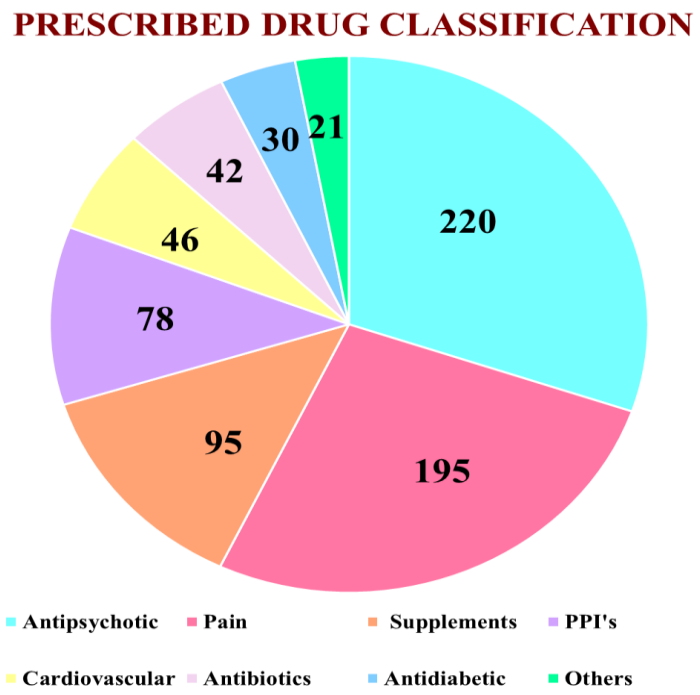


Figure 6: Distribution of patients according to the classes of drugs

The above pie chart depicts the distribution of patients based on the classes of drugs prescribed. Antipsychotics were the most frequently used drug category (n = 220), followed by pain medications (n = 195). Supplements (n = 95) and PPIs (n = 78) were prescribed at a moderate frequency, whereas cardiovascular drugs (n = 46), antibiotics (n = 42), antidiabetic drugs (n = 30), and other medications (n = 21) were prescribed less frequently. The findings show that the study population primarily uses antipsychotic and pain management therapies.

Discussion

The study "Exploring Prescription Trends and Clinical Decision-Making in the Neurology Department of a Tertiary Care Hospital" included 260 patients, with the majority (42.6%) aged 33-52 years, followed by 53-72 years (35%). Gore et al [8]. found that middle-aged people account for 40-45% of patients with chronic neurological and neuropathic diseases, which is consistent with our findings. The survey found that 63.8% of participants were female and 36.2% were male. Freynhagen et al [9]. found that females have a higher risk of musculoskeletal and chronic pain syndromes, accounting for roughly 60% of neuropathic pain patients. Hypertension was the most common comorbidity in past medical history, accounting for 13.5%, followed by stroke (5.4%) and hypothyroidism (3.5%). Adams et al[10]. found that hypertension was present in 15-20% of neurological patients and contributed significantly to cerebrovascular consequences. The WHO study on neurological disorders identified hypertension as a modifiable risk factor for neurological morbidity.[11]

Neck pain was the most prevalent complaint reported by 42.3% of patients, followed by low back discomfort in 36.5%. According to Deyo and Weinstein et al,**[12]** neurological and orthopaedic patients have a 30-50% prevalence of low back and neck pain. These findings are consistent. Woolf and Mannion**[13].** found that neuropathic and musculoskeletal pain syndromes contribute considerably to chronic cervical and lumbar pain issues in adults.

The study found that X-ray cervical spine was the most commonly recommended inquiry for 34.6% of patients, followed by MRI lumbar spine for 26.9%. According to WHO neurological diagnostic guidelines, spinal imaging accounts for 30-35% of investigations in patients with radiculopathy and persistent spinal pain syndromes. EEG was used in 13.5% of patients, similar to Hauser et al**[14].** who reported it in 10-15% of epilepsy-related neurological assessments.

Antipsychotic drugs were the most commonly prescribed class, accounting for 84.6% of all prescriptions, followed by pain medications (75%). Dipiro et al**[15].** found that neuropathic pain medicines and analgesics made up roughly 70-80% of prescriptions in neurology departments. The study found that vitamins and PPIs were often recommended, aligning with Katzung et al.'s**[16]** conclusions on the importance of supplementary therapy in managing chronic neurological conditions.

Gabapin-NT was the most commonly given antipsychotic medication (42.3%), followed by Tryptomer (22.7%) and Briv (20.5%). Freynhagen et al**[9].** found that gabapentin combinations accounted for 40-45% of neuropathic pain prescriptions due to its effectiveness in managing radiculopathy-related pain.

Myoril was the most commonly used pain medication, accounting for 38.4%, followed by Etoshine MR (25.6%). Woolf and Mannion**[13].** found that muscle relaxants and NSAID combinations are commonly used to treat chronic pain and musculoskeletal neurological problems. The study found that 45.2% of vitamin supplement prescriptions were for Rejunex-CD3, indicating frequent use. Katzung et al**[16].** found similar outcomes, with vitamin B-complex and neuroprotective supplements widely prescribed for neuropathic disorders.

Pan 40 accounted for 38.4% of proton pump inhibitor prescriptions, similar to Dipiro et al**[15]**. who observed routine co-prescription of PPIs in 35-40% of patients undergoing long-term analgesic medication to prevent gastrointestinal side effects.

The study found a higher prevalence of cervical and lumbar radiculopathy, extensive use of diagnostic spinal imaging, and increased prescription of neuropathic pain medications in neurological practice settings. The study highlights the significance of rational prescription, managing comorbidities, and utilizing multimodal therapy approaches to improve clinical outcomes for neurology patients.

Conclusion

This study shows that radiculopathy and pain-related neurological illnesses are more common in individuals who visit the neurology department of a tertiary care hospital. According to prescribing trends, neuropathic medicines, pain management therapy, and supportive pharmaceuticals are commonly used to treat patient-specific clinical problems. The findings highlight the significance of rational prescribing, precise diagnostic

evaluation, and personalized treatment techniques in enhancing patient care and therapeutic outcomes. In the future, these findings may help to build evidence-based prescribing guidelines, optimize clinical decision-making, and improve the overall quality of neurological healthcare.

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