A Prospective Observational Study on Assessment of Prescription Pattern among Patients Suffering from Cervical and Lumbar Pain

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ABSTRACT

Aim of this present study was to assess prescribing pattern of drugs in patients with cervical and lumbar pain. This study was conducted in neurological outpatient department at Apollo hospital, Jubilee Hills, Hyderabad and included 110 patients. Data was collected and documented after obtaining consent from the patient WHO indicators of prescriptions were utilized for assessing prescription pattern. For the evaluation of Drug-drug interaction Clinirex was utilised. In this present study, 61.82% patients suffering from cervical and lumbar pain were female and 38.18% patients were male. Most common risk factor 16.36% was hypertension. Total 79.09% of patients were prescribed with single neurological drug followed by 6.36 % two neurological drugs. All the drugs prescribed were with brand names and no injections were prescribed. The average number of drugs prescribed were 3.02. Total 91 drug- drug interactions were observed. Majority 96.70% of drug-drug interactions were from monitor closely category and it was 38.46% of Gabapentin and Nortriptyline followed by 14.29% of Nortriptyline and Tramadol. Only 1.10% of Nortriptyline and Donepezil, Cefuroxime and Pantoprazole were from generally avoid drug-drug interaction category each and 1.10% of Levodopa and Trihexyphenidyl was from adjust dosing category. In order to assess drug-drug interactions and prevent adverse drug reactions it is necessary to involve pharmacist along with neurologist in treatment and management of patients with cervical and lumbar pain.
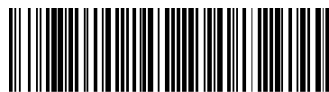
INTRODUCTION

A common condition that can cause disability, serious pain and increased health care costs worldwide is referred as neck pain. Many researchers are increasingly discovering that prevention strategies and effective treatment are needed for neck pain. One of the most common strategies for reducing neck pain adopted in the USA is pharmacotherapy including non-steroidal anti-inflammatory drugs (NSAIDs), opioids and paracetamol. A guideline was released by The U.S. Centres for Disease Control and Prevention for prescribing opioids that showed non-pharmacologic therapy and non-opioid pharmacologic therapy must be the preferred treatments for chronic pain. Only after careful consideration opioids should be used for short to medium period of treatment (Jin-Feng Huang *et al.* 2020*)* In the adult population, one of the major musculoskeletal disorders is neck pain; in the worlds its incidence ranges from 16.7% to 75.1%. It is a condition that has a complex etiology, including different factors: individual (age, body mass index, musculoskeletal pain history, genome), ergonomic (strenuous physical activity, inadequate posture, use of force and vibration, repetitive movement), behavioral (smoking and level of physical activity), and psychosocial (job satisfaction, stress level, anxiety, and depression).

A chief reason for disability and morbidity in day-to-day life at work is neck pain in many countries. Neck pain can cause an impact on the person's social, physical and psychological well-being.

Neck pain can be referred as a chronic episodic condition characterized by persistent, non-transient or fluctuating pain. In young adults the it is a complaint having 14-71% incidence sometimes in their lives. It shows potential damage to cervical spine structures.

Neck pain can occur due to many pathologies related to cervical spine. Many risk factors can originate neck pain. These risk factors were categorized into three such as individual, physical as well as psychological risk factors.

Low back pain (LBP) can cause burden on individuals, healthcare, and society as it is a major global public health problem. For the past 30 years it has also been the leading cause of disability worldwide.

In about 60%-80% of adults low back pain is experienced at some point in their lifetime. Andersson estimated the annual worldwide LBP incidence in adults to be 15% and the point

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prevalence to be 30%. Papageorgiou *et al*. stated that at least 50% of adults would have experienced an LBP episode.

Various studies show that one of the most common causes for a physician's visit is LBP and it can equally affect men and women. (Sudhir Ganesan *et al.* 2017)

Ethical approval

A formal ethical approval was acquired before the commencement of the study from the Institutional Ethics Committee- Biomedical Research Apollo Hospitals, Hyderabad. The approval reference number is AHJ-ACD-080/10-21. The date of approval was 29/10/2021.

MATERIALS AND METHODS

The study was prospective observational and it was conducted at Neurology outpatient department, Apollo Hospital, Film Nagar, Jubilee Hills, Hyderabad. This present study was conducted after obtaining ethics committee approval from Institutional Ethics Committee, Apollo Hospital, Hyderabad. This study was carried out from October 2021 to April 2022.

Patients fulfilling the following criteria were included in this study. Patients suffering from cervical and lumbar pain, patient willing to provide consent, patients of age group more than 18 to less than 75 years and patients visiting out-patient department of neurology. Patients not willing to participate, patients in critical health and patients of age less than 18 years and the age more than 75 years were excluded from this study. Patients were provided with leaflets for patient information. Total 300 patients with neurological disorder were explained about the study and invited to participate in this present study. A total of 110 patients with cervical and lumbar pain were included in this study and consent was obtained. Specially designed data collection form was used to collect and document all the data. The data from these patients' prescriptions was collected and entered into excel sheet.

For assessing prescriptions, WHO prescribing indicators were utilized (Md Yousuf Hussain et al. 2021, Dhivya K 2021). ATC classification was used to classify drugs (Morales-Plaza CD et al. 2017). Diagnosis of disease was categorized as per WHO's ICD11 criteria (https://icd.who.int/en, accessed on 07/05/2022). Collected data was entered in Microsoft Excel sheet and descriptive statistical analysis was carried out. Interview of patient was conducted and data was obtained, thus there was possibility of interviewer bias. This was a limitation of this study.

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RESULTS AND DISCUSSION

In this present study majority 61.82% patients were female and remaining 38.18% were male, represented in Figure 1**.** The majority 51.82% patients were prescribed with three medicines per prescription, represented in Table 1.

In this present study the majority 79.09% patients were prescribed with one neurological drug, represented in Table 4. The most commonly prescribed drug was gabapentin, represented in Table 4.1.

In this present study, we have found that the most commonly 26.36% patients suffering from cervical and lumbar pain were in the age group 46-55 and 56-65, represented in Figure 2. The majority 96.70% of drug-drug interactions were from monitor category, represented in Table 5.

Funding

No funding support was obtained for this present study.

Conflicts of interest

There were no conflicts of in this present study.

CONCLUSION

It can be concluded from this study that majority of the patients were prescribed with two AED and eighty-eight DDI's were noticed. Pharmacist need to be involved along with neurologist to prevent or reduce adverse drug reactions and to identify drug-drug interactions as early as possible and promote rational drug use.

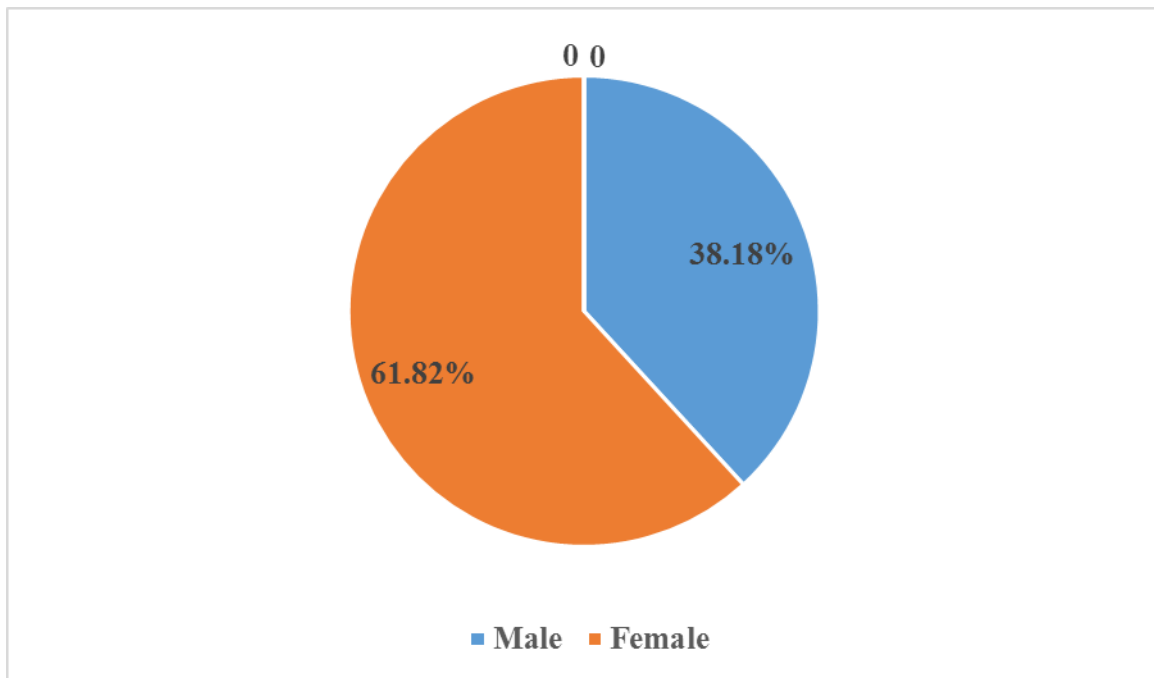*Citation: Ayesha Mahek Raja et al. Ijppr.Human, 2023; Vol. 27 (2): 874-883.*

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Figure 1: Pictorial representation of gender wise distribution
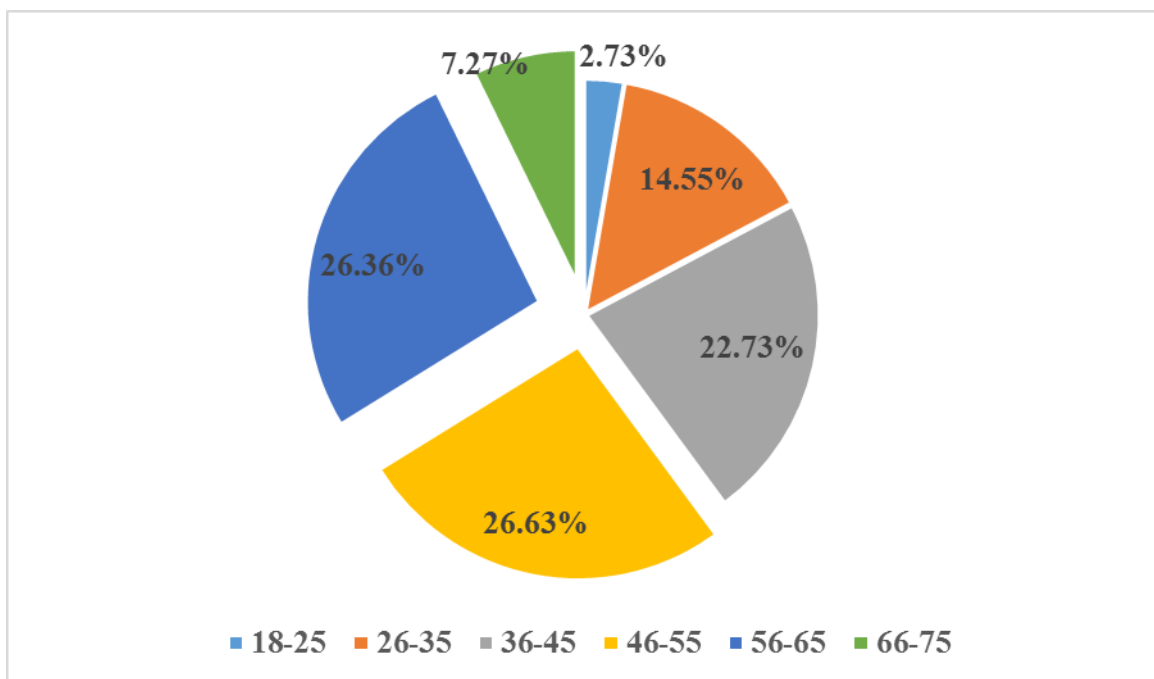
Figure 2: Pictorial representation of age wise distribution

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Table 1: Medicine prescribed status:

S.No.	No. of medicines per prescription	Number (N)	Percentage (%)
1	1	6	5.45
2	2	19	17.27
3	3	57	51.82
4	4	23	20.91
5	5 and above	5	4.55
	Total	110	100.00

Table 2: Assessment of risk factors for neurological disorders among these patients:

S.No.	Risk factors	Number (N)	Percentage (%)
1	Hypertension	18	16.36
2	Diabetes mellitus	3	2.73
3	Hypertension+Diabetes mellitus	13	11.82
4	Hypothyroidism	2	1.82
5	Hypertension+Hypothyroidism	1	0.91
6	Total risk factors	36	32.73
	No risk factor	74	67.27
	Total	110	100.00

Table 3: Assessment of prescribing indicators as per WHO:

S. No.	Prescribing indicators as per WHO	WHO standard values	Number (%)
1	Average number of drugs per prescription (number)	1.6-1.8	3.02
2	Percentage of encounters with an antibiotic prescribed	20.0-26.8	1(0.33%)

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Table 4: Number of neurological drugs in prescription:

S.No.	Number of neurological drugs prescribed	Number (N)	Percentage (%)
1	One	87	79.09
2	Two	7	6.36
3	No neurological drug	16	14.55
		110	100.00

Table 4.1: Prescription with one neurological drug (single or FDC):

S. No.	Name of drug	Generic name	Class	Number (N)	Percentage (%)
1	Gabapin	Gabapentin	neurological drug	4	3.64
2	Gabatin	Gabapentin	neurological drug	1	0.91
3	Laregab	Gabapentin	neurological drug	16	14.55
4	Neurokem	Pregabalin	neurological drug	4	3.64
5	Puregalin	Pregabalin	neurological drug	9	8.18
6	Trigabantin	Gabapentin	neurological drug	1	0.91
7	Etilaam	Etizolam	Benzodiazepine	2	1.82
8	Baga NT	Gabapentin+ Nortriptyline	neurological drug + Tricyclic anti-depressant	1	0.91
9	Gabantin NT	Gabapentin+ Nortriptyline	neurological drug + Tricyclic anti-depressant	3	2.73
10	Gabapin NT	Gabapentin+ Nortriptyline	neurological drug + Tricyclic anti-depressant	16	14.55
11	Gabator NT	Gabapentin+ Nortriptyline	neurological drug + Tricyclic anti-depressant	15	13.64
12	Neurokem M	Pregabalin + Methylcobalamin	Vitamin supplements+ neurological drug	4	3.64
13	Neuropride NT	Pregabalin+ Nortriptyline	neurological drug+ Tricyclic anti-depressant	1	0.91
14	Pregalift NT	Pregabalin+ Nortriptyline	neurological drug+ Tricyclic anti-depressant	9	8.18
15	Stalopam Lite	Clonazepam+ Escitolapram	Benzodiazepines+ Selective serotonin reuptake inhibitors	1	0.91
	Total			87	79.09

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Table 4.2: Prescription with two neurological drugs:

S.No.	Number of drugs		Class	Number (N)	Percentage (%)
1	Mylitrans+ Me Gab	Pregabalin+ Gabapentin+ Methylcobalamin	neurological drug +Vitamin supplements	1	0.91
2	Puregalin+ Neuroprime PG	Pregabalin+ Methylcobalamin+ Pregabalin	neurological drug +Vitamin supplements	2	1.82
3	GabatorNT+Proglet	Gabapentin+ Nortriptyline+ Primidone	neurological drug+ Tricyclic anti-depressant	1	0.91
4	Gabator NT+ Laregab	Gabapentin+ Nortriptyline+ Gabapentin	neurological drug+ Tricyclic anti-depressant	1	0.91
5	Laregab+ Puregalin	Gabapentin+ Pregabalin	neurological drug	2	1.82
	Total			7	6.36

Table 5: Drug-drug interactions category:

S.No.	Drug-drug interactions category	Number (N)	Percentage (%)
1	Generally avoid	2	2.20
2	Monitor	88	96.70
3	Adjust dosing	1	1.10
	Total	91	100.00

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Table 5.1: Drug-drug interaction of to be monitored category:

S.No.	Monitor	Number (N)	Percentage (%)
1	Amitriptyline+Nortriptyline	2	2.20
2	Amitriptyline+Pregabalin	2	2.20
3	Atorvastatin+Clopidogrel	1	1.10
4	Chlorzoxazone+Gabapentin	1	1.10
5	Gabapentin+Amitriptyline	4	4.40
6	Gabapentin+Nortriptyline	35	38.46
7	Gabapentin+Pregabalin	3	3.30
8	Gabapentin+Primidone	1	1.10
9	Gabapentin+Tramadol	10	10.99
10	Nortriptyline+Clonazepam	1	1.10
11	Nortriptyline+Pregabalin	9	9.89
12	Nortriptyline+Primidone	1	1.10
13	Nortriptyline+Tramadol	13	14.29
14	Pregabalin+Tramadol	4	4.40
15	Propranolol+Nortriptyline	1	1.10
	Total	88	96.70

Table 5.2: Drug-drug interaction of generally avoid category:

S.No.	Generally avoid	Number (N)	Percentage (%)
1	Nortriptyline+Donepezil	1	1.10
2	Cefuroxime+Pantoprazole	1	1.10
	Total	2	2.20

Table 5.3: Drug-drug interaction of adjust dosing category:

S.No.	Adjust dosing	Number (N)	Percentage (%)
1	Levodopa+Trihexyphenidyl	1	1.10
	Total	1	1.10

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