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A STUDY ON PRESCRIBING PATTERN OF NON STEROIDAL ANTI INFLAMMATORY DRUGS IN THE ORTHOPAEDIC DEPARTMENT IN A TEACHING HOSPITAL

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ABSTRACT

Nonsteroidal anti- inflammatory drugs (NSAIDs) are one of the most commonly used medications in the world. A prospective observational study was carried outon Prescribing Pattern of Nonsteroidal Anti Inflammatory Drugs in the Orthopaedic Department in a Teaching Hospital. The goal of the study was toassess the prescription pattern of Non steroidal anti inflammatory drugs in orthopaedic department and to determine the type and frequency of gastro protective drugs used with NSAIDs. And also to assess the disease pattern in orthopaedics. This study was undertaken, over duration of six months at Orthopaedic in-patient department of Basaveshwara Medical College & Hospital, Chitradurga. All patients presented in Orthopaedic in-patient department in the hospital who are prescribed by NSAIDs during the study period. The datacollected from the Patient medical records. Prescriptions containing NSAIDs are documented in an ethically approved and specialized drug utilization proforma.A total of 131 subjects were included as per study criteria. Among 131 subjects, 67.17% were males and 26.06% females. Prescription patterns of NSAIDs shows that 67.24% of Diclofenac followed by Paracetamol 26.72%.The most commonly prescribed fixed dose combinations in our study were combination of Trypsin, Bromelain, Rutoside, Diclofenac(39.70%).The most commonly prescribed gastro protectives were found that Pantoprazole 70.79% followed by Ranitidine 20.35%.The research concludes that Diclofenac and Paracetamoltakes part more in the

current prescription market of Orthopaedic subjects along with Pantoprazole and Ranitidine. Majority of the drugs were given by intravenous route followed by the oral route.

KEYWORDS: Prescription Pattern, NSAIDs, Gastro protective, Orthopaedics.

INTRODUCTION

Drug prescription pattern has been changing according to availability of newer drugs and various distantly among different geographical areas influenced by patient's characteristic, socioeconomic status, environmental influences and types of disease prevalence. Prescription instructions given by the doctor to the patient may be taken as a reflection of physician's attitude towards the disease and the role of drug in its treatment.[1]

Pain is the most common symptom for which patients require therapeutic consideration. Pain may be defined as an obnoxious sensory and emotional experience that is actually or potentially associated with tissue injury or depicted in terms of suchdamage.[2]

Although NSAIDs is providing huge benefit in term of pain relief, there is an increased risk of adverse drug reactions (ADRs) associated with the use of these drugs and gastrointestinal complications ranging from stomach pain to ulcers.[3]

Non-steroidal anti-inflammatory drugs include ibuprofen, naproxen, diclofenac, meloxicam, and celecoxib, along with many others. They are the most commonly used medications in the world. NSAIDs block a group of proteins called cyclooxygenases (COX), which are involved in the production of prostaglandins and thromboxanes, which are in turn involved in inflammation. There are different types of COX proteins, including COX-1 and COX-2.Some NSAIDs block both COX-1 and COX-2.[4]

Subsequently, the selective COX-2 inhibitors emerged as potentially gastro-friendly NSAIDs and it was conceptualized that sufficient therapeutic benefits are achieved by selective COX-2 inhibition.[5]Presently the use of NSAIDs is increased at the same time resulted in having therapeutic approaches to prevent and decrease the NSAIDs induced GI complications by the co-prescription of Gastro Protective Agents (GPAs) or replacement of NSAIDs with COX-2 inhibitors. H2 Receptor Antagonists (H2RAs), Proton Pump Inhibitors (PPIs), Prostaglandin analogues, antacids are the commonly used GPAs among which proton pump inhibitor was found to be the better choice of GPA.[6]

MATERIALS AND METHODS

It is a hospital based prospective observational study, planned and conducted for a period of 6 months in the orthopaedics inpatient department at Basaveshwara Medical College & Hospital, Chitradurga. Data were daily collected from the patients of both sex and all ages who admitted in the orthopaedic inpatient department, who are prescribed by NSAIDs during the study period. Thedatacollected from the Patient medical records. Prescriptions containing NSAIDs are documented in an ethically approved and specialized drug utilization proforma.

Inclusion Criteria

Patients who are willing to participate in the study and sign the consent form.

- Patients admitted to Orthopedic department of both gender
- Patients treated with NSAIDs

Exclusion Criteria

- Patients attending Orthopedic out-patient department (OPD)
- Pregnant and lactating patients
- Patients admitting in ICU with serious injuries

Ethical considerations

This study was approved by the "Institutional Human Ethical Committee" of the S.J.M College of Pharmacy, Chitradurga.

Vide number: SJMCP/IEC/12/2016-17(ANNEXURE – 1).

Statistical methods

The data thus obtained was compiled and analysed using descriptive statistics Microsoft Excel 2007 used for descriptive analysis.

RESULTS

The study was conducted after obtaining approval from the institutional ethics committee. Informed consent form is issued and explained to the patient or patient representatives in the local language (kannada). In a six months period of study, a total of 131 prescriptions were collected and analyzed. In our study, patients were divided into four groups based on different age. Majority of the orthopaedicpatients were observed in the age group of 41 to 60 years. The results are described in Table1.

In the study population, 67.17% were males and 32.82% were females. The results are graphically represented in Table 2.

In the total study population 61.06% had fracture, followed by 8.39% having disc prolapse and radiculopathy and 4.58% of crush injury. The results are shown in Table 3.

In the study population, 72.67% had received NSAIDs through intravenous route and 27.33% receivedthrough oral route. The results are graphically represented in Table 4.

Mostly prescribed NSAIDs in our study were Diclofenac (67.24%) followed by Paracetamol (26.72%), Etoricoxib(3.44%),Aspirin(2.58%). NSAIDsuse pattern is shown in table 5.

Mostly prescribed FDCs in our study were Trypsin, Bromelain, Rutoside, Diclofenac. NSAIDs(FDCs) use pattern is shown in table 6.

Mostly prescribed Gastroprotectivesin our study were Pantoprazole followed by Ranitidine. Gastroprotectives use pattern is shown in table 7.

Mostly prescribed Gastro protective (Fixed Dose Combinations) in our study were found that Rabeprazole, Domperidone. Gastroprotectives use pattern is shown in table 8.

Table 1:- Distribution of Study Population According to Age.

Sl. No.	Distribution According to Age (Years)	No of Patients	Percentage (%)
1	0-20	12	9.1
2	21-40	41	31.0
3	41-60	50	37.8
4	61-80	28	21.21
	Total	131	100

Table 2:- Distribution According to Gender.

Sl. No	Distribution According to Gender	Number of Patients	Percentage (%)
1	Male	88	67.17
2	Female	43	32.82
	Total	131	100

Table 3:- Distribution of Patients According to Diagnosis.

Sl. No	Reason for Admission	No. of Patients	Percentage (%)
1.	Arthritis	3	2.29
2.	Crush Injury	6	4.58
3.	Delayed union	3	2.29
4.	Disc prolapse & radiculopathy	15	11.45
5.	Dislocation OF Shoulder	5	3.81
6.	LCS	3	2.29
7.	Fracture	79	60.30
8.	Gangrene	2	1.52
9.	Hematoma &hemarthrosis	2	1.52
10.	Implant Removal	1	0.76
11.	Osteoporosis	1	0.76
12.	Low back Pain	3	2.29
13.	Potts spine	1	0.76
14.	Quadriparesis	1	0.76
15.	Spondylitis	1	0.76
16.	Tendinitis	1	0.76
17.	Trauma	2	1.52
18.	Wound	2	1.52
	Total	131	100

Table 4:- Distribution According to Route of Administration.

Sl. No	Routes of Drug Administration	No. of ROA	Percentage (%)
1	Intravenous	94	42.15
2	Per Oral	81	36.32
3	Intra muscular	48	21.52
	Total	223	100

Table 5:- Pattern of NSAIDs Prescription.

Sl. No.	NSAIDS (Mono Therapy)	No of Prescriptions	Percentage (%)
1	Diclofenac	78	67.24
2	Paracetamol	31	26.72
3	Etoricoxib	4	3.44
4	Aspirin	3	2.58
	Total	116	100

Table 6:- NSAIDs (FDCs)Used in Orthopaedic Department.

Sl. No.	NSAIDS (FDCs)	No. of Prescriptions	Percentage (%)
1	Paracetamol+ Aceclofenac+ Serratopeptidase	5	7.35
2	Aceclofenac+ Paracetamol+ Cholorzoxazone	23	33.82
3	Aceclofenac+ Paracetamol	5	7.35
4	Etoricoxib+ Thiocolchicoside	1	1.47
5	Trypsin+ Bromelain+ Rutoside+ Diclofenac	27	39.70
6	Tramadol Hydrochloride+ Acetaminophen	6	8.82
7	Ibuprofen+ Paracetamol	1	1.47
	Total	68	100

Table 7:-Pattern of GASTROPROTECTIVE (MONO THERAPY) **Prescription**

Sl. No.	Gastroprotective (Mono Therapy)	No of Prescriptions	Percentage (%)
1	Pantoprazole	80	70.79
2	Rabeprazole	8	7.07
3	Ranitidine	23	20.35
4	Omiprazole	2	1.76
	Total	113	100

Table 8:- Pattern of GASTROPROTECTIVE(FDCs) Prescription.

Sl. No.	GASTROPROTECTIVE (Fdcs)	No of Prescriptions	Percentage (%)
1	Rabiprazole+ Domperidone	11	100
	TOTAL	11	100

DISCUSSION

In our study we have enrolled 131 patients, were divided into five groups based up on different age. Among which 50(37.8%) were from 41-60 years followed by patients belonging to 21-40 years. Taruna Sharma *et al*., had conducted a study on the topic "Prescribing Pattern of NSAIDs in Orthopaedic OPD of a Tertiary Care Teaching Hospital in Uttaranchal." and a similar result was observed in distribution on patients based on age group.[7]

In our study population, 67.17% patients were males and 32.82% were females. A study conducted by Dr. Elsy MI *et al.*, study shows that a similar results 65% patients are males and 35% are females.[5] Also in Bhaskar. R *et al*., shows that 53.04% patients are males and 46.60% females.

In our study, the study population 60.30% had fracture, followed by11.45% having disc prolapse and radiculopathy and 4.58% of crush injury, low back pain were found in a small percent of 2.29.[8] Elsy MI *et al.*, conducted a study on Prescribing Pattern of Analgesics in Orthopaedic Department of an Indian Tertiary Care Teaching Hospital in Kerala. And their results found that fracture, injuries, LBA etc. are common reason for admission in orthopaedic department.[5] Ubedulla S *et al*., also conducted a study on Prescription trends in department of orthopaedics at tertiary careteaching hospital. They found that common orthopaedic diagnoses were fractures, spondylitis and joint dislocations in their study.[9]

Mostly prescribed NSAIDs in our study were Diclofenac(67.24%) followed by Paracetamol (26.72%), Etoricoxib(3.44%) and Aspirin(2.58%). Similar result was obtainedin the study done by R. Bhaskar *et al*., on Prescription pattern of analgesics in orthopaedics outpatient

departmentat a tertiary care hospital. The result shows that diclofenac(15.50%) maximally prescribed drug followed by etoricoxib(13.12%) and paracetamol(11.12%).[8]

Among the total of 131 patients, mostly prescribed FDCs in our study wereTrypsin, Bromelain, Rutoside, Diclofenac (39.70%) combination Followed ByAceclofenac, Paracetamol, Cholorzoxazone (33.82%) and Tramadol Hydrochloride Acetaminophen (8.82%). A study conducted by Ubedhulla S *et al*., the result obtained was similar to our results.[9] Mostly prescribed gastro protective drugs in our study were pantoprazole, followed by ranitidine. Bhaskar. R *et al*., conducted a study on Prescription pattern of analgesics in orthopaedics outpatient departmentat a tertiary care hospital, in this study also the mostly prescribed gastroprotectives are pantoprazole and ranitidine.[8]

CONCLUSION

The present study provides us patterns of NSAIDs usage in patients admitted in orthopaedic ward. The study will promote appropriate use of monitored drugs and reduction of abuse or misuse of monitored drugs. Diclofenac and Pantoprazole were prescribed more frequently in the orthopaedic department. In this majority of the drugs were given by intravenous route followed by the oral route. The NSAIDs Co-prescription with gastro protective, where it proved to be beneficial. Periodic evaluation of prescribing pattern is necessary to improve prescribing standards.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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