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Research Article

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Prescription trends in department of orthopedics at tertiary care teaching hospital

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ABSTRACT

The present article is to find out the prescription trends in Mamata Medial College, Khammam in Department of Orthopedics. Prescriptions from both OPD as well as IPD were collected and analyzed with the following parameters: Average number of drugs per prescription, Percentage of drugs prescribed by generic name, Dosage frequency and Duration of treatment, Disease distribution, percentage of drugs prescribed from essential drugs list or formulary. Number of drugs per prescription varied from 1 to 6 with average of 2.133. Dosage forms were recorded in 95% of prescriptions. The frequency of drug administration was recorded in 100% prescriptions whereas only 82% of prescriptions mentioned regarding duration of the treatment. Antimicrobials (15.64 %) and NSAIDs (40.13%) constituted the most routinely prescribed drugs among all the classes. Also most of the antimicrobials have been prescribed parent rely (95%). Suggestions were given to the doctors to prescribe drugs among the hospital formulary to reduce the economic burden to the patients since percentage of drugs prescribed among hospital formulary was only 79.93%.

Keywords: Dosage forms, Hospital formulary, Prescription Trends, Drug Prescription trends.

INTRODUCTION

A prescription by a doctor may be taken as a reflection of physicians' attitude to the disease and the role of drug in its treatment. It also provides insights into the nature of health care delivery system.[1] Meany new drugs are available which have made it possible to cure or provide the symptomatic control of many clinical disorders, but in most of the circumstances drugs are not used rationally for optimal benefits and safety. [2] To improve the overall drug use, especially in developing countries, international agencies like World Health Organization (WHO) and International Network for Rational Use of Drugs (INRUD) have applied themselves to evolve standard drug use indicators. [3] Analyzing the pharmaceutical prescribing practices by health providers is one of the three drug use indicators developed to measure the rational use of drugs. [4] So, this study is undertaken as an attempt to know the disease pattern and also prescribing practices in orthopedic department.

EXPERIMENTAL SECTION

The study was carried out at the inpatient department of orthopedics from July 2013–August 2013. Daily 2 hours was spent collecting the prescriptions from the patient after he underwent orthopedic check-up. A total of 182 prescriptions were collected. These prescriptions were then analyzed by using specially designed forms to record the required information.

The following parameters were given consideration:
1. Drug dosage form.
2. Average number of drugs per prescription.
3. Percentage of drugs prescribed by generic name.
4. Various classes of drugs prescribed.
5. Frequency of administration, dose of drug and duration of treatment.

RESULTS

Total number of prescriptions analyzed for study was 182 and the total number of drugs in those prescriptions was 588.Number of drugs per prescription varied from 1 to 8 with average of 3.23. Among 588 drugs, only 25 (4.25 %) of them were prescribed by generic names. The frequency of drug administration was recorded in 100% prescriptions whereas only 75% of prescriptions mentioned regarding duration of the treatment. Disease distribution is as follows

- Fractures-54%
- Lumbar Spondylosis-20%
- Osteoarthritis-6%
- Cervical Spondylosis-4%
- Joint Dislocation-4%
- Bursitis -3%
- Synovities -3%
- Others-6% as shown in Figure 1

The overall drugs prescribed were:
- Antimicrobials- 92 (15.64%)
- NSAIDs- 236 (40.13%)
- Analgesics, Antipyretics and Opoids- 56 (9.52%)
- Muscle relaxants- 43 (7.312%),
- Anti-inflammatory enzymes- 35 (5.95%),
- Antacids, Antiulcerants- 56 (9.52%) &
- Others- 70(11.90%) as shown in figure-2.

Major drugs with dosage forms of NSAIDs are shown in Table 1.Out of 236 dosage form 226 were oral dosage forms, remaining 10 were parenteral dosage forms. Names and number of NSAIDs are depicted in table 1.Most commonly prescribed NSAID combinations were Aceclofenac +Paracetamol +Serropeptidase (30.54%) and Diclofenac potassium+ Serropeptidase 35.84%. Major drugs with dosage forms of antimicrobial agents are shown in Table 2.No of oral dosage forms were 25 and 67 were parenteral forms. Most commonly used antimicrobials were Cefoperazone + tazobactum (38.80%) Amoxicillin+ clavulinic acid (16.41%) and the dosage forms of muscle relaxants were, oral 41 and Parenteral 2. Oral dosage forms of analgesics, antipyretics, Opoids were, oral dosage forms were 28 and 28 were parenteral forms and Oral dosage forms of anti-inflammatory enzymes were 35 as shown in table3. Trypsin, chymotrypsin (enteric coated) tablets were prescribed in 100% prescriptions.

Figure 1-Diagnosis in orthopedic department

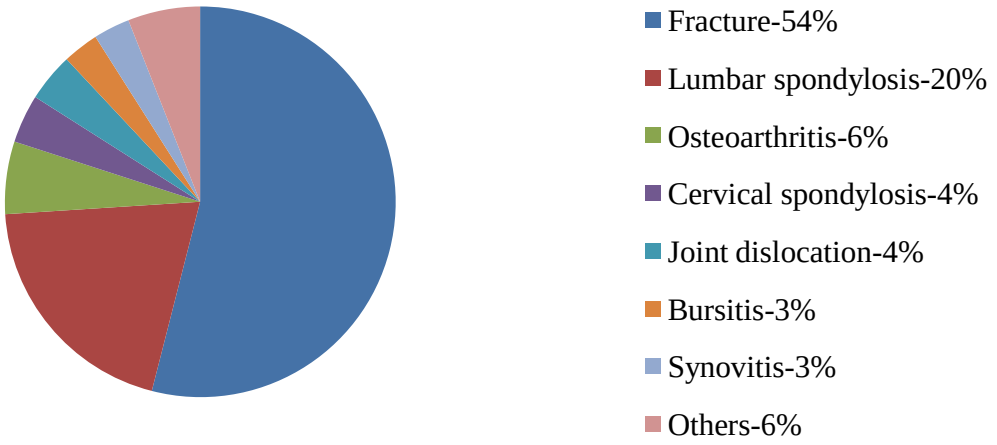

Figure 2- Various classes of drugs used in orthopedics department

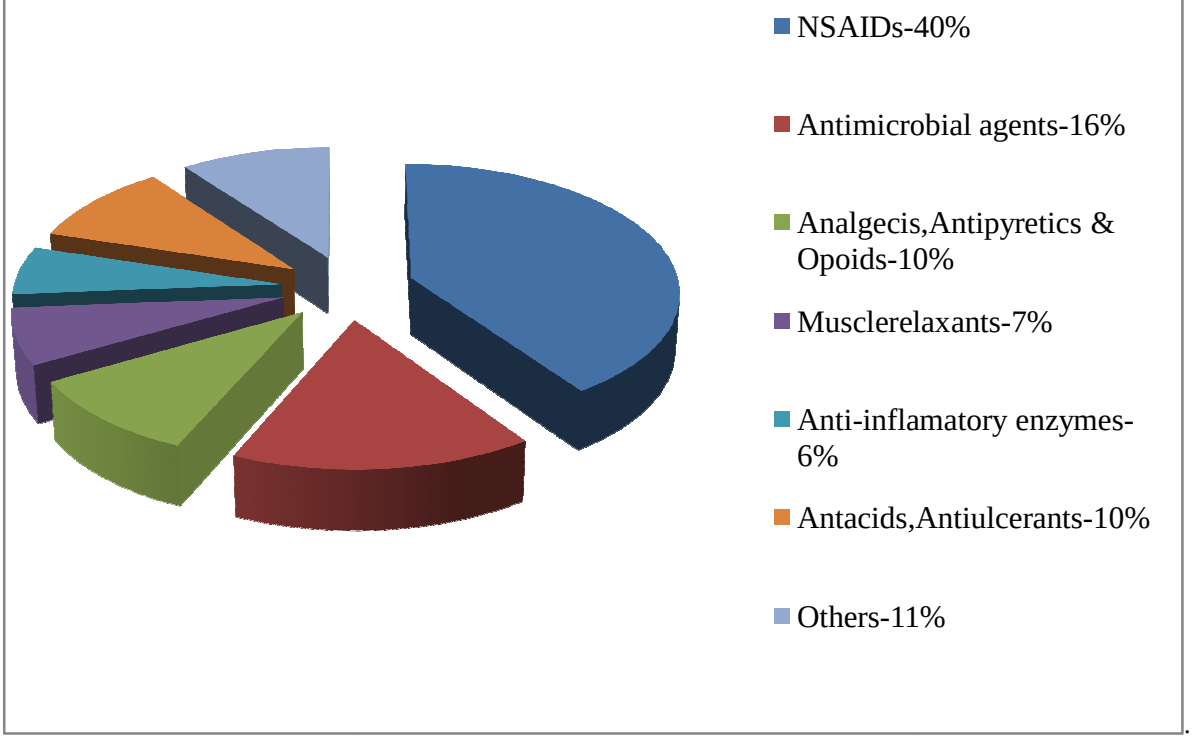

TABLE 1 – MAJOR DRUGS WITH DOSAGE FORMS OF NSAIDS

S.NO	DOSAGE FORM	NSAIDS	NUMBER	PERCENTAGE
1.	Oral (226)	Aceclofenac +Paracetamol +Serropeptidase	69	30.53
		Diclofenac potassium+ Serropeptidase	81	35.84
		Lornoxicam + Paracetamol	40	17.69
		Aceclofenac	17	7.52
		Etodolac+Thiocolchicoside	7	3.09
		Ibuprofen+ Paracetamol	2	0.88
		Diacerein + glucosamine	9	3.98
		Indomethacin	1	0.44
2.	Parenteral (10)	Diclofenac	20	100

TABLE 2 – MAJOR DRUGS WITH DOSAGE FORMS OF ANTIMICROBIAL AGENTS

S.NO	DOSAGE FORM	ANTIMICROBIAL AGENTS	NUMBER	PERCENTAGE
1.	Oral (25)	Cefpodoxime proxetil	17	68
		Ofloxacin	3	12
		Cefotaxime	3	12
		Ampicillin+ cloxacillin	1	4
		Cotrimoxazole	1	4
2.	Parenteral (67)	Ciprofloxin	3	4.47
		Metronidazole	4	5.97
		Cefoperazone + tazobactum	26	38.80
		Amoxicillin+ clavulinic acid	11	16.41
		Ceftriaxone	8	11.94
		Amikacin	6	8.95
		Tinidazole	4	5.97
		Gentamicin	3	4.47
		Moxifloxacin	1	1.49
		Azithromycin	1	1.49

TABLE 3- MAJOR DRUGS WITH DOSAGE FORMS

MUSCLE RELAXANTS				
S.NO	**DOSAGE FORM**	**DRUGS**	**NUMBER**	**PERCENTAGE**
1.	Oral (41)	Thiocolchicosidase	41	100
2.	Parenteral (2)	Thiocochicosidase	2	100
ANALGESICS, ANTIPYRETICS,OPIODS				
1.	Oral (28)	Paracetamol	20	71.42
		Tramadol+paracetamol	8	29.58
2.	Parenteral (28)	Tramadol hydrochloride	28	100
ANTI-INFLAMATORY ENZYMES				
1.	Oral(35)	Trypsin, chymotrypsin (enteric coated)	35	100

DISCUSSION

Average number of drugs per prescription is an important consideration. In our study the average number of drugs per prescription was 3.2307%. The mean number of drugs prescribed was slightly higher than that reported in a previous study, [5] but other hospital based studies in India reported 3-5 drugs per prescription which was justified in this study. [6, 7]It is preferable to keep the number of drugs per prescription as low as possible since higher figures lead to increased risk of drug interactions, adverse effects and increased cost to the patient. Hence, this study showed a remarkable restraint on prescribing and an awareness to avoid polypharmacy and irrational drug combinations. Generic drugs are usually sold for significantly lower prices than their branded equivalents. A generic drug (generic drugs, short: generics) is a drug defined as "a drug product that is comparable to brand/reference listed drug product in dosage form, strength, route of administration, quality and performance characteristics, and intended use." [8] It has also been defined as a term referring to any drug marketed under its chemical name without advertising. [9, 10] In our study among 588 drugs, only 25 (4.25 %) of them were prescribed by generic names which was very less when compared to some previous studies [11, 12] Some earlier studies have also reported to only 29.3% and 19% of drugs prescribed by generic name [13, 14].In a recent study from Allahabad, it was reported that only 2% of the medicines were prescribed by the generic names. [15] Prescribing by generic name should be promoted as it could help in cheaper treatment to the patients. [16].The frequency, dosage and duration of drug

therapy are the most important parameters, because if not recorded properly, can lead to indiscriminate and injudicious use of drugs. In this study, dosage forms were recorded in 95% of prescriptions. The frequency of drug administration was recorded in 100% prescriptions whereas only 82% of prescriptions mentioned regarding duration of the treatment. The same parameters were also noted in a study in which the frequency of application was recorded in 93% and the duration of treatment was mentioned in 75% of all the prescriptions audited [17].NSAIDs were the most routinely prescribed drugs among all the classes 226(40.13%).In our study combination of NSAIDs prescribed were 94% which is too high when compared to one study [18]. The use of combination therapy may increase the unwanted side effects and sometimes may result in fatal drug to drug interactions. Such type of prescription pattern should be discouraged among physicians.

Antimicrobials and NSAIDs which were prescribed were used either pre operatively to relieve pain and to treat various infections & post-operatively. In our study 93% of the antibiotics prescribed were of parenteral forms which is high when compared to a study reported from South India [19], 36% of antibiotics were prescribed by the parenteral route. Appropriate selection of antibiotic and route of administration is dependent on the patient's symptoms, the clinical examination and the culture/sensitivity results. The average number of drugs per prescription is an important index of a prescription audit. It is always safe to keep the number of drugs per prescription low to minimize the risk of drug interactions, development of bacterial resistance and hospital costs [20]. In our hospital antimicrobials were prescribed empirically (97%) based on the likely pathogen, the available drugs & the severity of the conditions. It is always preferred to have complete prescription which includes name, age, sex, and diagnosis with rational drug treatment using less number of drugs, proper dosage form, and frequency of administration with duration of therapy. Thus, it will give relief to patient from disease in a short span and with less cost. Our hospital-based prescriptions were almost complete in 77% cases. Since percentage of drugs prescribed from hospital formulary was only 79.93% which is less when compared to government hospitals so suggestions were given to the doctors to prescribe drugs among the hospital formulary to reduce the economic burden to the patients. There is a need to conduct many such studies in other departments as well to audit large number of prescriptions and educate the prescribers on rational drug therapy for benefits and safety to the patient.

CONCLUSION

The study presents the prescription trends in Mamata Medial College, Khammam in Department of Orthopedics of Dr.NTR University of health sciences. This type of studies will help as a guideline for policymaking decision in the health care system. There is a considerable scope of improvement in the prescribing practices, especially prescribing by generic names which has less financial burden on patients, so prescription of drugs from a hospital formulary has to be encouraged for the purpose. Prescribing medicines by generic names would help in less expensive treatment. The number of medicines per prescription should be kept minimum. In other words rational drug must be strictly followed. Polypharmacy and combination of drugs has to be discouraged to minimize adverse drug reactions and drug interactions

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