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Research Article

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Evaluation of WHO prescribing indicators among orthopaedic inpatients at a tertiary care hospital

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ABSTRACT

Evaluation of prescribing indicators regularly helps to monitor the prescriptions to reduce indiscriminate use of drugs. As the data on prescribing patterns in orthopaedics is lacking, the present study was planned to analyze prescribing pattern and WHO Indicators in Orthopaedic inpatients at Victoria Hospital, Bangalore. Demographic, disease and drug data were collected from case records of patients. Data was analyzed by descriptive statistics. 100 inpatient prescriptions were analyzed, of which 73 were males while 27 were females. Duration of hospitalization was 8-10 days. Common orthopaedic diagnoses were fractures (44%), surgeries (26%) and joint dislocations (18%). Analgesics were most commonly prescribed drug class (31.25%), followed by gastroprotectives (23%) and antimicrobial agents (18.75%). Tramadol (40%) and diclofenac (26.67%) were commonly prescribed analgesics, while ceftriaxone (62.22%) and amikacin (28.89%) were common antimicrobials. 50% drugs were injectables. Average number of drugs per encounter was 4.8 (±1.2). Drugs prescribed by generic name were 60% and 85% of drugs were prescribed from essential drugs list. A new trend of prescribing tramadol was noted in the study. Polypharmacy and higher frequency of injections use was reported in the present study. Prescriptions of antibiotics, essential medicines and use of generic drugs were found to be satisfactory.

Key words: Prescribing indicators, Orthopaedics, Polypharmacy, Essential medicines, Rational drug use

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INTRODUCTION

Rational use of medicines (RUM) is an issue that has global importance, as it aims at evaluating the accessibility, availability and correct prescribing of the drugs. In developing countries like India, where the financial resources are scarce and affordability of the patients is less, implementation of RUM becomes even more important [1]. Studies to evaluate the prescription pattern and adherence to standard treatment guidelines have been shown to supplement RUM. Prescription pattern studies aim at analysing the prescriptions against the standards and providing accurate data to formulate local guidelines for judicious drug use.

Practice of irrational drug use is rampant in India. The same has been confirmed from a study conducted in Goa, which reported that the quality of prescriptions both in terms of lay-out and content were grossly inadequate [2]. Prescription pattern analysis by Jain S et al from Jaipur reported 53% polypharmacy and only 25% of generic drug prescription [3].

Non-steroidal anti-inflammatory drugs (NSAIDs), antimicrobial agents and corticosteroids are frequently prescribed for long periods in Department of Orthopaedics. It is well documented that injudicious use of these drugs increase mortality and morbidity due to adverse effects. Drug utilization pattern analysed in orthopaedics department at Nepal showed that NSAIDs were most commonly prescribed and 27.4% of the prescriptions had various problems [4]. A study from Chennai reported about 73% of patients in orthopaedic ward received diclofenac and 5.5% of

them had adverse drug reactions [5]. Hence, we decided to evaluate the WHO prescribing indicators and prescription pattern in the department of Orthopaedics at Victoria Hospital, Bangalore.

EXPERIMENTAL SECTION

This prospective observational study was conducted from July to September 2013, at Department of Orthopaedics, Victoria Hospital, Bangalore. All the patients admitted in the wards of Department of Orthopaedics were included. The demographic data, disease data and drug data of the patients were collected in the study proforma. Data was analyzed using descriptive statistics namely total numbers, mean, standard deviation and percentage wherever applicable. The WHO prescribing indicators were also analyzed from the data.

RESULTS AND DISCUSSION

100 in-patients were included in the study. Among them, 73 patients were males, while 27 were females. Majority of the patients (46) admitted were in the age group of 41-60 years, followed by 21-40 years (33), 61-80 years (16) and 0-20 years (5).

The mean duration of hospitalization was 8-10 days. The most common diagnosis for admission was fractures (44). The other common diagnoses were surgeries (26) and joint dislocations (18).

A total of 480 drugs were prescribed for 100 in-patients. The details are as shown in the table 1.

Table 1. Drugs prescribed with their numbers (n) and percentages (%)

DRUGS	N (%)
ANALGESICS	**150 (31.25)**
Tramadol	60 (40)
Diclofenac	40 (26.67)
Paracetamol	20 (13.33)
Aceclofenac	20 (13.33)
Ibuprofen	10 (6.67)
GASTROPROTECTIVES	**110 (22.92)**
H_2 blockers	70 (63.63)
PPIs	30 (27.27)
Antacids	10 (9.10)
ANTIMICROBIAL AGENTS	**90 (18.75)**
Ceftriaxone	56(62.22)
Amikacin	26(28.89)
Crystalline penicillin	5(5.56)
Metronidazole	3(3.33)
CALCIUM PREPARATIONS	**70 (14.58)**
MISCELLANEOUS DRUGS	**60 (12.5)**
Multivitamin preparations	26(43.3)
Muscle relaxants	9(15)
Anti-tubercular drugs	8(13.3)
Serratiopeptidase	7(11.6)
Benzodiazepines	6(10)
Corticosteroids	4(6.6)

Assessment of *WHO prescribing indicators* shows:
Average number of drugs per encounter: 4.8 (±1.2)
Percentage of encounters with an antibiotic prescribed: 18.75%
Percentage of encounters with an injection prescribed: 44%
Percentage of drugs prescribed from essential medicines list: 85%
Percentage of drugs prescribed by generic name: 60%

The present study highlighted the frequent use of analgesics (31.25%) in orthopaedic patients, with majority being tramadol, followed by diclofenac and paracetamol. NSAIDs are most commonly prescribed drugs globally for the management of pain and inflammation and hence the same has been reflected in the present study also. Despite the wide prescription, their gastrointestinal adverse effects are the major limitation in clinical use. Hence, they are co-prescribed with gastro protective agents. We noted 23% of analgesics being co-prescribed with gastroprotectives mainly, H_2 blockers and PPIs. The same has been reported earlier by Kumar A et al from West Bengal [6] and Shankar et al from Nepal [4].

A new trend of prescribing tramadol more frequently than NSAIDs like dicofenac and paracetamol was seen in the present study. Elsy et al from Kerala [7] reported the same and suggested that it could be due to their established safety in short course therapy.

Calcium preparations were prescribed for 14% and multivitamins for about 5% of the patients. This is comparable to prescription of multivitamins and minerals in Nepal [4] which accounted for 8.5%.

Ceftriaxone was the most commonly prescribed antimicrobial agent which is also reported by Kumar GA from Kolkata [8]. Antimicrobial agents were prescribed prophylactically before surgeries and also to treat ongoing infections.

Average number of drugs per encounter was 4.8 (±1.2) in the present study. The same was found to be 1.9±0.8 in orthopaedic patients in Nepal and 2.6 in Uttaranchal in India [9]. The same calculated from 35studies was 2.39 as reported in WHO medicines situation [10]. As the majority of the patients were in the age group of 41 to 60 years, drugs prescribed for co-morbid conditions might have increased the drugs per encounter in this study.

Percentage of drugs prescribed by generic name is 60%. The same was reported to be less than 10% in Goa [2], but similar to the mean percentage reported in WHO medicines situation as 60.3% [10]. Use of generic drugs not only reduces dispensing errors, but also reduces the cost to the patients.

Percentage of encounters with an antibiotic prescribed is 18.75%. It was 3.8% in Nepal [4] and 44.8% in WHO medicines situation [10].

Percentage of encounters with an injection prescribed is 50%. This is much higher compared to a study conducted by Shankar et al in Nepal [4] in Orthopaedics out-patient department (8.6%). The mean of injections prescribed taken from 34 studies reported in WHO medicines situation was 22.8% [10].

Percentage of drugs prescribed from essential drug list is 85%, which almost matches the mean from 8 different studies of 71.7% [10].

CONCLUSION

Polypharmacy and higher frequency of injections use reported in the present study could be influenced by the fact that only in-patients were included in the study. Prescriptions of antibiotics, essential medicines and use of generic drugs are found to be satisfactory. Regular educational interventions to improve prescribing practices of doctors at different levels may further promote rational prescribing.

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