Evaluation of Prescribing Pattern in Orthopaedics Department in a Tertiary Care Hospital: A Prospective Observational Study

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Abstract: The aim of the study was to evaluate the prescribing pattern in orthopaedics department in a tertiary care hospital. A prospective, observational, cross sectional study was carried out by collecting prescription of patients admitted to orthopaedics department between January 2019 to june 2019. A total of 120 patients were enrolled into the study who fulfilled the inclusion criteria, of them 74 pts (61.7%) were males and 46 pts (38.3%) were females. Demographic details reveals that the patients of age between 41-60 were more followed by 61-80 years. Of those patients included in the study 11.6% (14 pts) were smokers, 5% (6 pts) were alcoholics and 23.3% (28 pts) have both smoking and alcoholic history. Of 120 pts, 44% (53 pts) have other co-morbidities (DM, HTN, Resp. diseases, Cardiac problems). Average number of drugs per prescription were 8 to 10. Antibiotics, supplements, proton pump inhibitors, NSAIDs and anti-inflammatory were more commonly used drugs, followed by anti-emetics, anti histamins, antacids and others. Irrational use of medication is a potential risk factor that predisposes patients to potential adverse reactions and idiopathic drug related events. Besides compromising patient safety, such events may either cause hospital admissions or may prolong the length of hospital stay levying additional health care costs.

Keywords: Orthopedics, antibiotics, supplements, NSAIDs.

1. Introduction

Prescription analysis is a very good tool to analyze the prevailing disease pattern and drug use in a community. Irrational prescription leads to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient along with higher costs [1]. Prescription analysis helps in promoting rational use of drugs in which right drug is prescribed for right condition in right dose and duration and gives information about any dispensing errors [2].

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 [3]. Many 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 [4].

The quality of treatment provided relies on safe and effective therapy at a minimal cost [5]. Using multiple drugs to obtain high efficacy predisposes the patient to serious adverse events (SAE) or toxicity whereas restricting the use of a drug while it is intended often leads to therapeutic failure [6], [7]. Higher cost of therapy leads to patient non-adherence which causes inadequate response to therapy [8]. Thus using an appropriate medicine at a right dose, for a right duration, to the right patient, at the right time forms the basis of the concept of rational drug use. Prescribing without complying with the standard guidelines of treatment is often considered as irrational in today's scenario where pharmacotherapy of diseases is often evidence based [9].

Drug utilization has been defined as the marketing, distribution, prescription, and use of drugs in a society with special emphasis on the resultant medical and social consequences [10]. The recent changes in the drug prescribing pattern, increased concern over adverse drug reactions and escalation in the drug pricing have increased the importance of drug utilization studies [11]. A periodic evaluation of drug utilization pattern has become necessary to promote rational drug use by increasing the therapeutic efficacy while decreasing the occurrence of untoward adverse effects. To promote rational use of drugs in developing countries, international agencies such as the World Health organization (WHO) and the International Network for the Rational Use of Drugs have evolved standard drug use indicators.

Analyzing the pharmaceutical prescribing practices by health providers is one of the three drug use indicators developed to measure the rational use of drugs [12]. Inappropriate use of antibiotics leads to emergence of antibiotic resistant strains possessing a global threat of antibiotic apocalypse [13]. Similarly, irrational use of other medicines increases the chances of SAE or treatment failure which increase the length

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of hospital stay, levies additional costs and affects the quality of therapy [14]. In addition, irrational drug usage and poly-pharmacy increase the probability of drug interactions which may have negative effects on the therapy [15]. This study is undertaken as an attempt to know the disease pattern and also prescribing practices in orthopedic department where analgesics and antibiotics were used.

2. Materials and Methods

In a teritiary care hospital, at orthopaedic department, a prospective, observational, cross sectional study was carried out by collecting prescription of patients between January 2019 to june 2019. Patients of all age groups, both male and female patients from orthopaedic department with other co morbidities were included in the study. Patients from inpatient department and pregnant women were excluded in the study. Sample size of this study was 120 and the data from the prescription of the patient was noted in profile forms and entered in excel sheet. The data was analysed by using SPSS software.

3. Results

A. Demographic Details

Table 1
Age

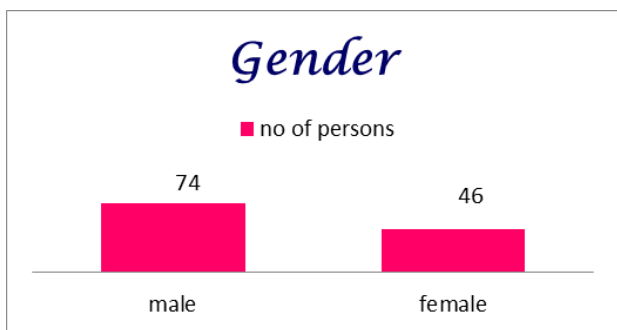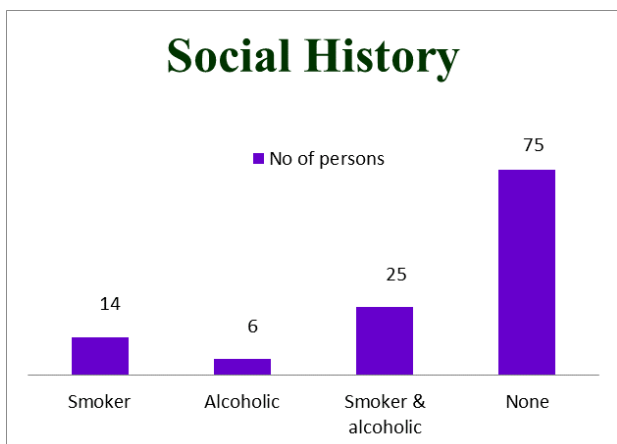| Age (yrs)	Frequency
21 – 40	11
41 – 60	61
61 – 80	42
81 – 100	6
Total	120

Fig. 1. Gender

Fig. 2. Social history

Demographic details reveals that the patients of age between 41-60 were more (61 patients) followed by 61-80 (42 patients), then 21-40 (11 patients) and 81-100 (6 patients). This describes the effect of age factor on disease distribution.

Analysis of 120 patients approached to orthopaedics department reveals that prevalence was more in males (74) than females (46).

According to social history it was found that 14 patients (11.66%) were smokers, 6 patients (5%) were alcoholics, 25 patients (20.83%) have both smoking and alcohol habits and 75 patients (62.5%) doesn't smoke or consume alcohol.
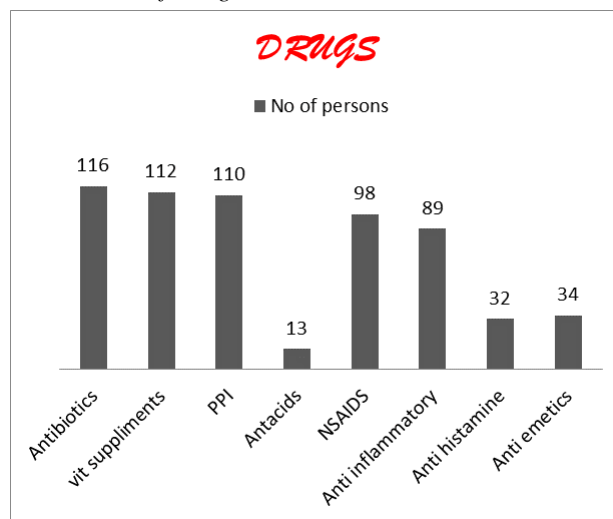
B. Distribution of Drugs

Fig. 3. Drugs

Antibiotics were most commonly prescribed drugs in orthopaedic department, these were prescribed in 116 patients (96.6%), followed by vitamins and minerals in 112 patients (93.3%) and proton pump inhibitors in 110 patients (91.6%), then NSAIDs in 98 patients (81.66%) and anti-inflammatory in 89 patients (74.1%), followed by anti-emetics in 34 patients (28.33%), antihistamines in 32 patients (26.67%) and antacids in 13 patients (10.83%).

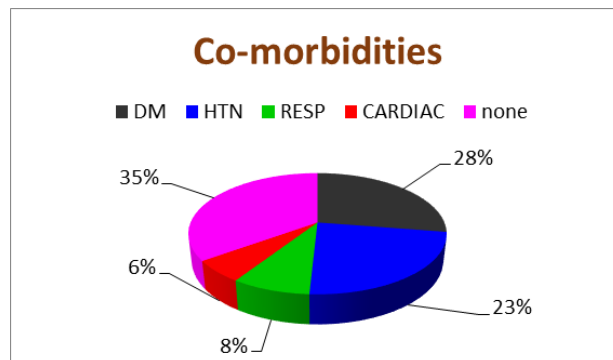### C. Distribution of Comorbid Diseases

Fig. 4. Co-morbidities

In many patients (65%) along with main diagnosis, comorbid conditions were observed. Of those Diabetes Mellitus was the most common comorbid condition (28%), followed by

Hypertension (23%), then by respiratory disorders (8%) and cardiac disorders (6%).

D. Distribution of Other Drugs

Table 2
Distribution of other drugs

Other drugs	No. of persons
Anti-diabetics	33
Anti hypertensives	28
Anti-asthmatics	10
Anti-platelets	7
Anti hyperlipidemics	7

To treat the comorbidities some other classes of drugs were prescribed respectively. Of those 33 patients (27.5%) were prescribed with anti-diabetics, 28 patients (23.33%) with anti hypertensives, 10 patients (8.33%) with anti-asthmatics and 7 patients (5.83%) with anti-platelets and anti hyperlipidaemics.
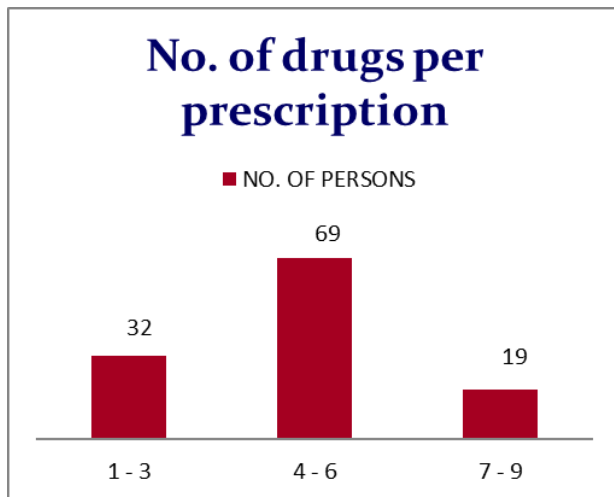
E. Number of Drugs Per Prescription

Fig. 5. No. of drugs per prescription

Total number of drugs prescribed for a patient deals with the rational use of drugs. More number of drugs prescribed for a patient leads to development of resistance, adverse drug reactions and other drug related problems. Indirectly, multiple drug use may affect the patient adherence towards treatment. Based on the severity, usage of multiple drugs is indicated for the treatment. In the present study more number of patients 69 patients (57.5%), were prescribed with 4-6 number of drugs, followed by 1-3 number of drugs for 32 patients (26.66%), and 7-9 number of drugs for 19 patients (15.83%).

4. Conclusion

Irrational use of medication is a potential risk factor that predisposes patients to potential adverse reactions and idiopathic drug related events. Besides compromising patient safety, such events may either cause hospital admissions or may prolong the length of hospital stay levying additional health care costs.

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