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RESEARCH ARTICLE

Evaluation of prescribing pattern at dental outpatient department at a hospital, Gujarat

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ABSTRACT

Background: Prescriptions of drugs are a mainstay for control of dental pain and infections, but data lacks on the prescribing habits of dental practitioners. **Aims and Objectives:** To study drug utilization pattern at dental outpatient department comparing observed patterns of drug use with current recommendation or guidelines. **Materials and Methods:** Data were collected for 934 patients for about 3 months in the detailed case record form and that were analyzed using WHO core indicators. **Results:** Out of 934 patients for 390 were prescribed medications. The average number of drugs per encounter was 1.82, and only 1.58% drugs were prescribed by generic name. A number of drugs given by injectable route was only 0.38%. A total number of antimicrobial prescribed was 447 (41.54%) and 85.03% were prescribed from essential medicine list (EML). **Conclusion:** There is no trend of polypharmacy and most drugs being prescribed from EML but need awareness among detail practitioners for prescribing drugs by generic name and more use of unjustifiable antimicrobials leads to drug resistance.

KEY WORDS: Drug Utilization; Prescribing Core Indicators; Polypharmacy

INTRODUCTION

Medicines play an important role in disease prevention and in health care delivery.[1] Inefficient prescribing habits will not only lead to ineffective and unsafe treatment but also exacerbation or prolongation of illness, distress and harm to the patient and increasing the cost therapy. The prescribing medical practitioner also becomes invulnerable to patients attitudes for seeking medicines and strong marketing strategies employed by the pharmaceutical industries. Thus, this will be followed by their juniors unless they are made aware about then health care problems arising due to such prescribing habits.[2]

Thus, inefficient use of medicines affects the safety and quality of therapeutic care and wastes resources. Unjustifiable multidrug prescriptions, i.e., polypharmacy, may be due to treatment based on symptoms rather than the diagnosis. Such polypharmacy may lead to reduction in quality of drug therapy, wastage of resources, emergence of resistance, increased cost of therapy, and increased adverse reactions. Much prescribing may indeed be unnecessary, inappropriate, or irrational.[1] The evaluation of drug use is a very vital aspect of patient care. It also measures the quality of care provided by health practitioners for patients. Despite this, medicines are often managed and used inefficiently and irrationally. Such concerns about the safety, efficacy, costs, and appropriateness of care pointed to the need for a comprehensive analysis of the factors determining drug consumption.[3]

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Drug utilization research was defined by the WHO in 1977 as the marketing, distribution, prescription, and use of drugs in society, with special emphasis on the resulting medical, social and economic consequences. The ultimate goal of drug utilization research must be to assess whether drug therapy is rational or not. Every country needs a drug policy to make the most rational and cost-effective use of a very expensive part of the health service. Drug utilization research provides the tools for them to do so.[4] Drug utilization studies play a pivotal role in pursuing clinicians toward rational drug prescribing, thus minimizing the possibilities of adverse effects and helping toward improvisation of patient care compliance and resultant quality of life.

With the advent of new technologies in the field of dentistry, it's been very convenient to treat dental diseases. However, the prescription of drugs is mainstay even during dental treatment to treat infections or control dental pain. Although a large number of studies have been undertaken to study the drug prescribing patterns of physicians in the other branches of medicines, the data on the prescribing habits of dental practitioners are very scarcely available.[5] A proper diagnosis of dental conditions and their treatment with pharmacotherapy and/or dental procedure play a pivotal role in dental health care. It is of community relevance to study the prescribing patterns in dentistry with an aim to find out lacunae existing and in turn suggest remedial measures to overcome them. It also aims to analyze the emerging trends in drug usage at various levels in dental health care.

Thus, in view of above observations, this study was conducted with the aims to study drug utilization pattern at the dental outpatient department (OPD) and comparing observed patterns of drug use with current recommendation or guidelines.

MATERIALS AND METHODS

It study carried out from July 01, 2013 to September 14, 2013 at dental OPD a government Hospital, Vadodara, Gujarat. An appropriate protocol and pro forma for case record form (CRF) were prepared, and ethical permission was taken from the Institutional Ethics Committee for Human Research.

All the patients attending dental OPD were enrolled in the study. Medications prescribed by attending doctors and internees, along with their dose, route, frequency, etc., were noted in CRF. Data were collected and analysis of data was done applying WHO drug use indicators.[6]

RESULTS

During the period of 2½ months (i.e., July 01, 2013 to September 14, 2013), total 934 (100%) patients were enrolled in the study. Among them, 501 (53.64%) were male and 433 (46.36%). The majority of patients were prescribed two drugs per prescription followed by prescriptions containing one drug while prescriptions containing 3 or 4 drugs were less (Figure 1). Of the 590 prescriptions, a total number of single drug prescriptions amounted to 1050 whereas fixed dose combinations (containing 2 medications) prescriptions were in all 13, i.e., 13 × 2 = 26. Hence, the total numbers of drugs prescribed were 1076 (i.e., 1050 + 26).

Among the total 1076 drugs prescribed, anti-inflammatory analgesics and antimicrobials were most commonly prescribed. A total number of local applications prescribed were 85 (7.90%) followed by multivitamins, antiulcer agents, anti-oxidants, etc. (Table 1).

Among the total 1076 drugs prescribed, antimicrobial prescriptions were 447. Most commonly prescribed

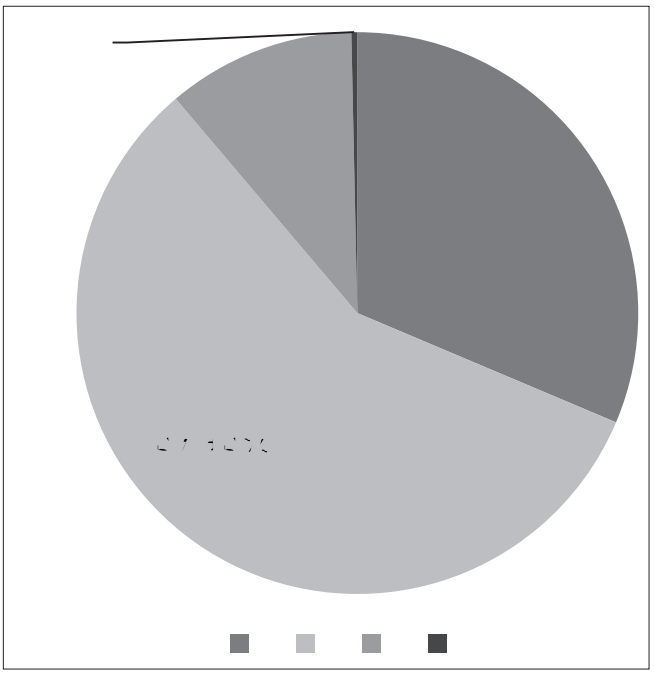

Figure 1: Number of drugs per prescription

Table 1: Drugs prescribed according to different groups

Group	Type of group	Number of drugs (%)
I	Anti-inflammatory analgesic	491 (45.63)
II	Antimicrobials	447 (41.54)
III	Local applications	85 (7.90)
IV	Anti-inflammatory analgesic with combination	24 (2.23)
V	Multi-vitamins	10 (0.93)
VI	Anti-ulcer	7 (0.65)
VII	Others	
	• Carbamazepine	6 (0.56)
	• Anti-oxidant	5 (0.46)
	• Tablet diazepam	1 (0.09)
	Total	1076 (100)

antimicrobial was amoxicillin followed by metronidazole, doxycycline, amoxicillin+clavulanic acid, and ampicillin. Ciprofloxacin, clindamycin, azithromycin, and megaclox (ampicillin+cloxacillin) were the least used drugs.

Oral route was most commonly used, followed by a local application (85; 8.00%) and injectable route (Figure 2).

Of the mentioned indicators laid down by the WHO for analyzing drug utilization pattern, we studied the WHO core prescribing indicators (Table 2).

DISCUSSION

This study has been carried out as an attempt to profile and report drug utilization pattern at dental OPD in a government tertiary care hospital which may reflect the Indian context.

In contrast to drug utilization studies being carried out in other disciplines of medicine, there is a relative dearth in profiling the drug prescribing patterns in the field of dentistry.

Table 2: WHO core prescribing indicators

Average number of drugs per encounter	**1.82**
Percentage of drugs prescribed by generic name	1.58
Percentage of encounters with an antibiotic prescribed	41.54
Percentage of encounters with an injection prescribed	0.38
Percentage of drugs prescribed from essential medicines list or formulary	85.03

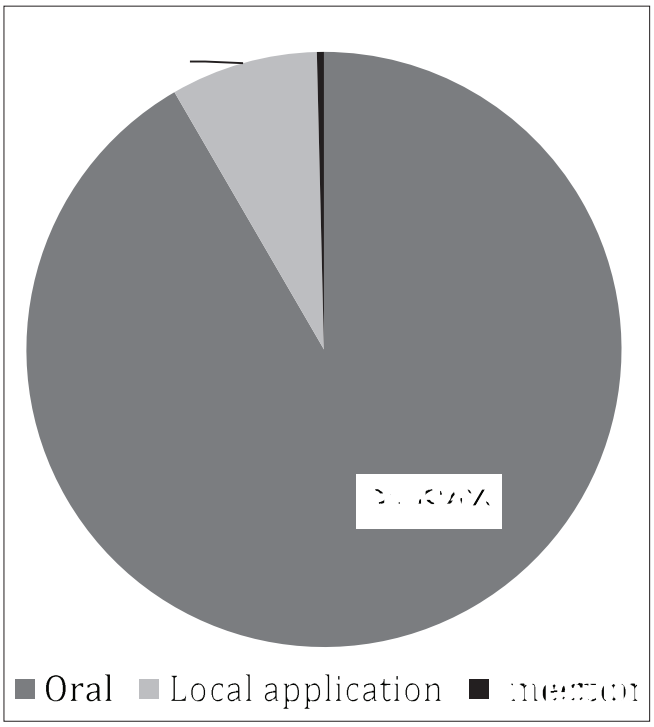

Figure 2: Routes of administration

Out of the 934 patients enrolled in our study, the number of male patients was more than the number of female patients. In this study, a maximum number of patients suffering from dental conditions were observed in age Group V (31-45 years) followed by Group IV (18-30 years) and Group VI (46-60 years).

Dental pain associated with chronic irreversible pulpitis (29.83%) and/or periapical abscess was the most common reason responsible for patient's visit to dental OPD for dental care.

Of the total 934 patients, 590 patients were treated with one or more medications whereas remaining 344 patients either did not require any medication or were treated with some dental procedures only.

A total number of medications prescribed to these 590 patients were 1076 (100%) of which the single drug prescriptions amounted to 1050 (97.55%) whereas 26 (2.42%) were fixed dose combination prescriptions. These findings are contrast to other studies wherein combinations prescribed were found to be very high, i.e., 38%, 45%, and 43.1%.[7-9]

Although the number of prescriptions with 3 medications were relatively lower (10.85%), the number of prescriptions having 2 medications were very high (57.45%). Paudel et al.[5] in his study reported that 13.5% percentage of patients were receiving 3 drugs which comply with our observation for prescriptions with 3 drugs.

In our study out of total 1076 (100%) medications prescribed, the most common prescribed by dental health care professionals were anti-inflammatory-analgesics (45.63%), followed by antimicrobials (41.54%).

In our study, oral route (91.63%) for the administration of the drug was commonly employed followed by local applications. This is similar to other studies[5,10] and can be justified by the fact that oral route versus parenteral route in Indian scenario definitely contributes toward improved patient compliance and adherence.

More number of drugs per prescription increases the risk of drug-drug interaction.[11] With the data of considering total 590 patients treated with medication which were 1076 in total, the average number of medication per encounter comes to 1.82. In the study by Paudel et al.,[5] data were near to our value, i.e., 1.78. In contrast to our study, few other studies[7,12,13] have shown higher values. The WHO recommends that average number of drugs per prescription should be <2.[6] The observed value in our study, therefore, does not indicate any polypharmacy existing at our tertiary care hospital.

Our study observed that only 1.58% medications were prescribed by generic name. There have been studies with

higher values ranging even up to 30-40%. Paudel et al.[5] and Sarkar et al. found this value 21% and 30.8%, respectively, while in the study by Rauniar et al.[13] this value was nil. Rehan et al.[9] mentioned that 98.5% drugs were prescribed by trade name. Thus, it seems that in our hospital dental practitioners do not adhere to prescribing norms of using generic name of drugs. Prescription by generic/trade name is an argumentive topic. However, usage of generic name should be more of advocated and practiced as it makes drug therapy rational and cheaper.[14]

In this study, drugs prescribed from essential medicine list (EML) turned out to be 85.03% which is high as compared to studies by Sarkar et al.[8] and Sah et al.[12] Prescribing medication from the EML is beneficial as it cuts down the cost and improves safety profile for patients. Prescribing from EML should be encouraged for promoting rational use of medications. Although our study observed 85.03% of prescriptions from EML, its low when compared to other studies like by Suthrson et al.[15]

Although all efforts have been made to make the study explanatory, it still goes with limitations of having relatively smaller sample size and short duration of the study.

CONCLUSION

The frequent and unjust use of antimicrobials needs to be curtailed down as it not only increases to the cost of therapy and reduces patient's compliance but also pushes toward the threat of developing increased antimicrobial resistance in future. Prescribing medications from EML should be encouraged for promoting rational use of medications as it not only cuts down the overall cost of therapy but also improves safety profile for patients, which in turn promotes patient's adherence to treatment.

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