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Drug Utilisation Evaluation in the Surgery Outpatient Department of a Tertiary Care Teaching Hospital



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ABSTRACT

This study focuses on drug utilization in the surgery outpatient department of a tertiary care teaching hospital, emphasizing the importance of rational prescribing to avoid negative consequences. The research problem addressed the lack of systematic audits of drug usage in surgical outpatients, crucial for ensuring safe and effective treatment. The aim was to evaluate drug utilization patterns and prescribing practices in this setting. A prospective observational study was conducted over three months at Navodaya Medical College Hospital and Research Centre in Raichur, Karnataka, analyzing 55 prescriptions for outdoor patients. Findings revealed that an average of 4.54 medicines were prescribed per prescription, with a significant percentage from the WHO essential medicines list. Most drugs were prescribed by brand names. Male patients were more prevalent, with the 19-35 age group being the most common. Appendicitis was the primary diagnostic condition, with oral medications being the most frequently prescribed. The study underscores the need for monitoring and improving drug prescribing and dispensing practices in surgical outpatient settings.



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INTRODUCTION

Drug utilisation has been defined by the WHO as the study of the marketing, distribution, prescription and use of drugs in a society with special emphasis on the resulting medical, social and economic consequences.¹ Rationality of prescribing pattern is of utmost importance because bad prescribing habits including misuse, overuse and underuse of medicines can lead to unsafe treatment, exacerbation of the disease, health hazards, economic burden on the patients and wastage of resources.² The implementation of the national list of essential medicines (NLEM) list for obtaining and supply of medicines, especially in public sector healthcare structure, has resulted in progress of availability of medicines, cost saving and more rational use of drugs.³

Irrational prescribing is a global problem, particularly affecting the developing countries. Generalized irrational drug utilization involving marketing, distribution, prescribing and use of drugs further aggravates the situation in less developed countries.⁴

The administration of appropriate antibiotics preoperatively is the ultimate way to prevent surgical site infection. The prophylactic antibiotics aimed not to eradicate pathogens but to achieve an immunity level in order to eliminate the possible infections caused by potential micro-organism without affecting microbial flora.

Appendectomy, cholecystectomy, hernioplasty, wound debridement, amputation, prostatectomy, tendon repair, parotidectomy, bursectomy and sphincterotomy are common surgical procedures being performed in tertiary care hospital.⁵

In surgery department, it is indispensable to supervise the use of drugs, taking consideration of the fact that parenteral administration of drugs like tetanus and anti-rabies vaccination takes place. Also, monitoring of drug availability is very essential in a developing country like ours. No studies were present on systematic audit of surgical outpatients.⁶

The study results would be taken as basis for identifying potential targets to improvements prescribing pattern and drug dispensing in NMCH & RC.

MATERIALS AND METHODS:

A prospective observational study was conducted over three months at Navodaya Medical College Hospital and Research Centre (NMCH & RC) in Raichur, Karnataka. Data were

collected from patient medical records and entered into a specially designed data entry form. Statistical analysis was performed using descriptive statistics, including total numbers, means, frequencies, and percentages.

Inclusion Criteria:

- Patient attending the surgery OPD.
- Patients of both gender.

Exclusion Criteria:

- Patient admitted in the inpatient department of surgery.
- Patient who came for follow up.
- Emergency patients.

Ethical consideration

This study was approved by the Research and the Institutional Human Ethics committee (Study number EC/02/2024) of our Medical College and Hospital. The data was obtained from the patient medical record. Anonymity and confidentiality for study participants were always upheld. The research was carried out adhering to the norms of Good Clinical Practice.

Statistical Analysis:

Descriptive statistics, such as total numbers, mean, frequency, and percentage, were used to analyse the data from the data entry form.

RESULTS:

A total of 55 participants were included in the study during the data collection period. The objective of the study was to utilize the medications used in surgery department. Out of 55 participants, were the majority of participants under age of 19-35 (50.9%) followed by 36-60 (32.72%), age >60 (9.09%) and the least of participants under age of 0-18 (7.27%). This is seen in Figure 1.

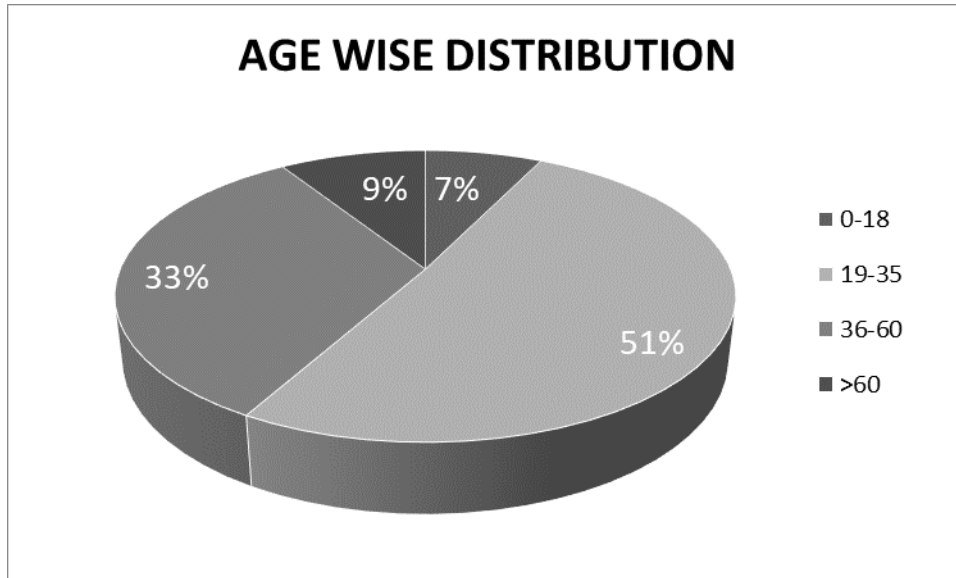


Figure 1: Based on age distribution

Out of 55 participants, were majority of male patients 32 (58.18%) followed by female patients 23 (41.81%). This is seen in Figure 2.

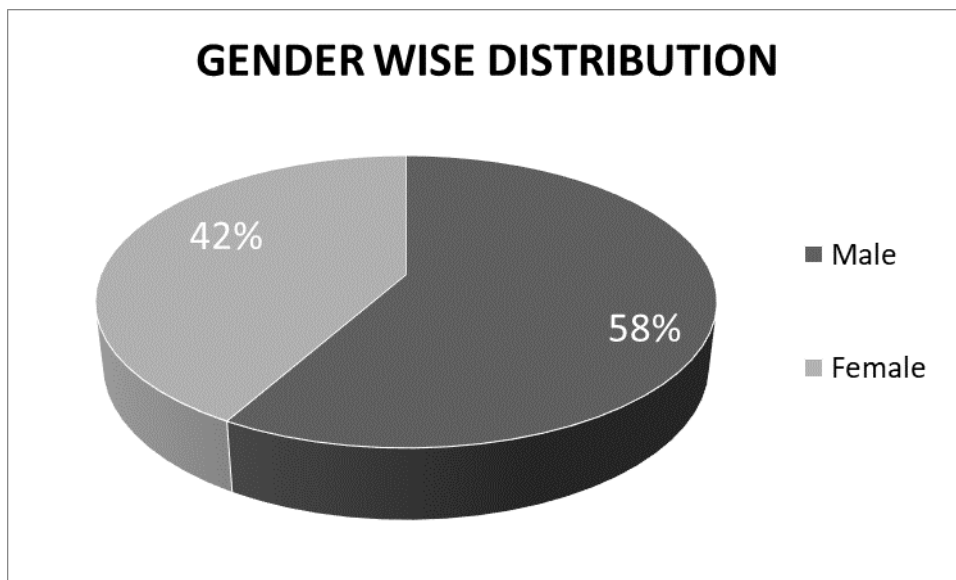


Figure 2: Based on gender distribution

Out of the 55 prescriptions that were examined, 18.18% (10) patients had a diagnosis of Acute Appendicitis, 14.54% (8) patients had a diagnosis of Renal Calculi, Cellulitis, Gallstone, Deep vein thrombosis and Fistula in anus of each were 7.27% (4), Hyperthyroidism, Bilateral fibroadenoma, Umbilical Hernia, Inguinal Hernia, Diabetic foot, Fatty liver of each were 3.63% (2), followed by others 16.36% (9). This is seen in Table 1.

Table 1: Patients with different diagnostic condition

S.no.	Diagnosis	No. of Participants	Percentage
1	Appendicitis	10	18.18%
2	Renal Calculi	8	14.54%
3	Deep Vein Thrombosis	4	7.27%
4	Cellulitis	4	7.27%
5	Gallstone	4	7.27%
6	Anul Fistula	4	7.27%
7	Hyperthyroidism	2	3.63%
8	Bilateral fibroadenoma	2	3.63%
9	Umbilical Hernia	2	3.63%
10	Inguinal Hernia	2	3.63%
11	Diabetic foot	2	3.63%
12	Fatty liver	2	3.63%
13	Others	9	16.36%

A total of 250 drugs were prescribed out of which 96% (240) were prescribed oral followed by topical 2% (5) and injectable 2% (5). This is depicted in Table 2.

Table 2: Dosage forms prescribed out of total drugs (n=250)

Dosage form	Total drugs prescribed	Percentage(%)
Oral	240	96%
Topical	5	2%
Injectable	5	2%

A total of 250 drugs were prescribed out of which 82.4% (206) of them were prescribed with Generic name and 17.6% (44) of them were prescribed with Brand name. This is depicted in Table 3.

Table 3: Drug prescription by generic and brand names

Drug prescription	Total drugs	Percentage (%)
Drugs prescribed by generic name	44	17.6%
Drugs prescribed by brand name	206	82.4%

Based on WHO core drug indicators used to study prescription:

Average number of drugs per prescription- 4.54, percentage of encounters with an antibiotic prescription- 15.2%, percentage of drugs prescribed by generic name-17.6%, percentage of drugs prescribed from WHO essential medicine list-44.4%, percentage of encounters with an injection prescribed- 2%. The results are shown in Table 4.

Table 4: Based on WHO Prescribing indicators

Prescribing Indicators	Nos.	Percentage	WHO-STD
Total no. of prescriptions encountered	55	-	-
Total no. of drugs prescribed	250	-	-
Average no. of drugs per encounter	4.54	-	1.6-4.8
Percentage of drug prescribed by Generic name	44	17.6%	100%
Number of drugs prescribed from (EDL)	111	44.4%	100%
Percentage of encounters with an Antibiotics prescribed	38	15.2%	20 to 26.8%
Percentage of prescription with injectables	5	2%	13.4to 24.1

Out of 55 patients were class of drugs prescribed in surgery OPD majority of the patients prescribed by PPI 33 (16%), followed by antibiotics 38 (15.2%) and NSAID 19 (7.6%), Antithyroid 4 (1.6%), Anticoagulant 13 (5.2), Analgesic 33 (13.2), Laxative 12 (4.8%), Multivitamin 10 (4%), Urine alkalizers 12 (4.8), Antiemetics 16 (6.4), Benzodiazepines 6 (2.4), Antidiabetics 6 (2.4), Antihypertensive 9 (3.6) Other drugs prescribed in OPD patients 32 (12.8).The results shown in figure 3.

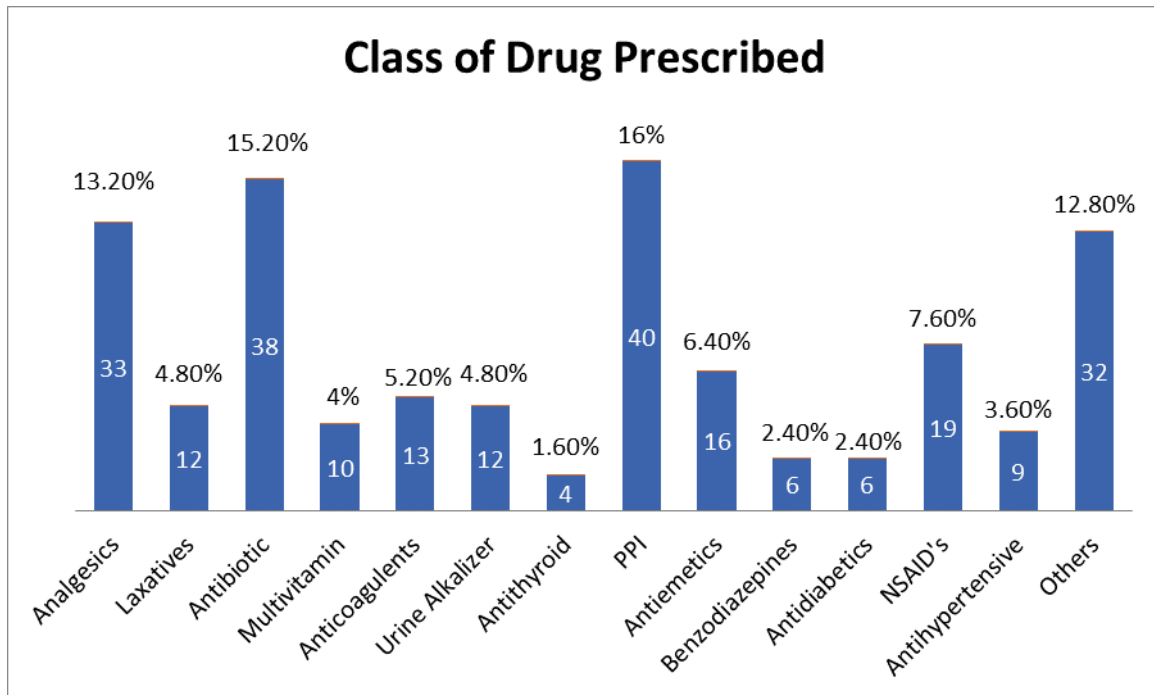


Figure 3: Class of drugs prescribed in surgery OPD

DISCUSSION

The present study evaluated drug utilization patterns in the surgery outpatient department of NMCH & RC. The high average number of drugs per prescription and the prevalent use of brand names highlight areas for potential improvement in prescribing practices. The significant proportion of prescriptions from the WHO essential medicines list indicates adherence to recommended guidelines, but the low percentage of generic prescriptions suggests a need for increased focus on cost-effective prescribing.

In our study, a total of 55 prescriptions were analyzed prescribed to outdoor patients, in which 250 drugs were prescribed in total. Average number of medicines prescribed per prescription was 4.54. Around 44.4% of drugs were prescribed from the WHO model list of

essential medicines. Approximately 82.4% of drugs were prescribed by their branded name and 17.6% of drugs were prescribed by their generic names.

Among these 55 patients, male patient was more predominant (58.18%) than female patients (41.81%). The age group of 19-35 years (50.9%) were patients came with OPD basis in the surgical ward. Where maximum number of patients belongs to the category of 0-18 years (7.27%) followed by age of 36-60 years (32.72), >60 years (9.09%). This category of people was easy to get infection its leads to get admission at surgical ward.

The major diagnostic condition was observed in surgical OPD ward was Appendicitis (18.18%) followed by Renal Calculi (14.54%), Gallstone (7.27%), Cellulitis (7.27%) and others were found to be (16.36%).

Most of the prescriptions were prescribed with large portion of oral medication (96%) followed by injectable (2%) and topical (2%). Most of the class of drugs prescribed in OPD surgery ward basis were majority of patients prescribed by PPI (16%) followed by Antibiotics (15.20%), Analgesics (13.20%), NSAIDs (7.60%), Antiemetics (6.40%), Anticoagulents (5.20%) and others medications (12.80%).

CONCLUSION

Irrational prescribing is a global problem, particularly affecting the developing countries. The administration of appropriate antibiotics preoperatively is the ultimate way to prevent surgical site infection. In surgery department, it is indispensable to supervise the use of drugs, taking consideration of the fact that parenteral administration of drugs like tetanus and anti-rabies vaccination takes place. Also, monitoring of drug availability is very essential in a developing country. Drug Utilization studies are important for obtaining data about the patterns and quality of use, the determinants of drug use and the outcomes of use. The WHO drug use indicators are highly standardized and are recommended for inclusion in drug utilization studies.

This study underscores the importance of rational prescribing practices in the surgery outpatient department of a tertiary care hospital. The findings highlight the need for regular audits and monitoring of drug utilization to ensure safe, effective, and cost-efficient treatment.

Implementing strategies to increase the prescription of generic drugs and adherence to essential medicines lists can further enhance prescribing practices.

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CONFLICT OF INTEREST

The author declares no conflict of interest.

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