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DRUG PRESCRIPTION PATTERN USING WHO PRESCRIBING INDICATORS AT THOUBAL DISTRICT HOSPITAL, MANIPUR: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: Evaluation of prescribing patterns of the physicians is important to assess the common causes of irrational prescribing that can lead to problems like unnecessary expenditure on drugs, increased risk of adverse reactions and resistance to antimicrobials. The objective of this study was to assess drug prescription pattern using WHO prescribing indicators at Thoubal district hospital, Manipur. **Methods:** A descriptive cross-sectional study conducted at medicine outpatient department. All the prescriptions were digitally photographed and assessed using WHO prescribing indicators. The data collected were analysed and was expressed in percentages, mean. The ideal values for the prescribing indicators were adopted from previous similar studies. **Results:** Out of the 644 drugs prescribed, average number of drugs per encounter was 3.02. Total number of drugs prescribed by generic name was 24 (3.7%). Percentage of antibiotics and injections prescribed per encounter was 21.5% and 11.7% respectively. 235 drugs prescribed were from the essential drug list of India (36.4%). **Conclusion:** Generic prescribing was very low and polypharmacy was a common finding. Prescription of drugs from the essential drug list was low but the prescription of antibiotics and injections was within the limits of standard values fixed by WHO.

KEYWORDS

Irrational prescribing, WHO prescribing indicators, generic prescribing, essential drug list

INTRODUCTION

Physicians uses prescribing as important tool for curing illness, relieving symptoms and preventing future disease. Prescribing requires diagnostic skills, in-depth knowledge of medicines, understanding the principles of clinical pharmacology and potential risk that will affect the decision-making ability of the prescriber.[1]

Conference of experts which were called upon by World health organization (WHO) in Nairobi, 1985; defined the rational use of drugs as, it requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community. Irrational use of medicines is a major problem worldwide, faced by public health provider and administrators. Irrational prescribing leading to overuse, underuse and misuse of medicines results into wastage of scarce resources and widespread health hazards.[2]

Irrational use occurs when one (or more) of conditions mentioned in the definition of rational drugs is not met. Several studies have shown irrational drug prescription across India.[3,4] Polypharmacy, inappropriate or inadequate use of antimicrobials, over-use of injections, lack of adherence with standard guidelines are some of the irrational prescribing practices.[5]

More than 100,000 formulations are present in Indian markets but only 384 drugs National list of essential medicines (NLEM).[6] According to WHO; *Essential Medicines* are defined as those medicines that satisfy the priority healthcare needs of the population and are selected based on their relevance to public health, evidence on their safety and efficacy and comparative cost effectiveness.[7]

According to Census 2011; 68.9% population resides in rural areas and usually the first point of contact with the health system is our primary and secondary level health facilities.

Around 25–70% of worldwide healthcare expenditure is spent on medicines and in this view, appropriate medicine use can help in optimizing the use of limited health resources and also improving the quality of healthcare delivery. A set of "core drug use indicators" was developed by WHO that included three related areas of "prescribing practices, patient care, and facility-specific factors". Hence, WHO drug use indicators are necessary for assessment of drug use patterns to promote rational drug use in developing countries.[8]

Similar studies were done that showed irrational drug prescription so this study was conducted with the objective of studying the prescribing patterns in accordance with WHO prescribing indicators in a secondary health facility, Thoubal district hospital, Manipur.

MATERIALS AND METHODS

Study Setting

A descriptive cross-sectional study was conducted in Thoubal District hospital, Manipur from May 2023 to June 2023. Manipur state has 7 district hospitals out of which Thoubal District Hospital was randomly selected. Study was conducted in Medicine outpatient department after obtaining permission from Medical Superintendent of the institution and a written order was issued for the purpose of study.

Medicine OPD at the hospital was run by registered medical practitioners with varying degree of post- qualification practice experience.

Data Collection

The medicine outpatient department of the hospital was visited during OPD hours and hospital average patient inflow in medicine OPD was 80 patients per day during the period of study. All the prescriptions on that day were digitally photographed after taking written informed consent from the patients.

Patients less than 12 years of age, pregnant, lactating females, critically ill patients and those who did not give the consent were excluded from the study.

Data Analysis

Assessment of the collected prescriptions was done by WHO prescribing indicators along with some other parameters relevant to prescription writing like name, age, sex and address of the patient as per model prescription format for making prescriptions by the registered medical practitioners according to draft regulations placed

by National Medical Commission (Ethics and Medical Registration Board) F.No.12013/01/2022/Ethics dated 23/05/2022; was also assessed.

The WHO prescribing indicators includes; average number of drugs per encounter, percentage of drugs prescribed by generic name, percentage of encounters with an antibiotic prescribed, percentage of encounters with an injection prescribed, percentage of drugs prescribed from essential drugs list (EML).[8]

Methods of calculating various prescribing parameters:

- Average number of medicines per encounter: can be calculated by dividing the total number of medicines prescribed by the total number of encounters surveyed.
- Percentage of drugs prescribed by generic name: calculated by dividing the number of drugs prescribed by generic name by the total number of drugs prescribed, expressed in percentage by multiplying by 100.
- Percentage of encounters with an antibiotic prescribed: calculated by dividing the number of encounters with one or more antibiotic prescribed by the total number of encounters surveyed, expressed in percentage by multiplying by 100.
- Percentage of encounters with an injection prescribed: calculated by dividing the number of patient encounters with an injection, by the total number of encounters surveyed, multiplied by 100.
- Percentage of drugs prescribed from essential drugs list: calculated by dividing the number of products prescribed which are listed on the essential drugs list (EDL)by the total number of products prescribed, multiplied by 100.

Operational Definitions:

The drugs included in the analysis, from essential drug list based on WHO Model List of Essential Medicines – 23rd List (2023) and all the fixed dose combination was treated as single drug.

Statistical Analysis:

All data were analysed using Microsoft Excel 2010 after analysing manually and was expressed in percentages, mean. The ideal values for the prescribing indicators were adopted from previous studies.[5]

Table I: Percentage Of Injections And Antibiotics Prescribed Per Encounter

	Minimum number/ encounter	Maximum number/ encounter	Sum	Number of encounters	Percentage per encounter (%)
Total number of drugs	1	7	644	213	-
Number of injections	0	3	33	25	11.7
Number of antibiotics	0	2	48	46	21.5

Table II: Percentage Of Drugs Prescribed By Generic Name And From EDL

	Minimum number/ encounter	Maximum number/ encounter	Sum	Number of encounters	Percentage (%)
Drugs prescribed by generic name	0	2	24	20	3.7
Drugs prescribed from EDL	0	4	235	152	36.4

Average number of drugs per encounter = 3.02

RESULTS:

A total of 213 prescriptions were collected from Thoubal district hospital from May 2023 to June 2023. Total number of drugs in 213 prescriptions were 644. Patient identifiers like name, age, sex and address were written on 100% prescriptions. Minimum number drug/ encounter was 1 and maximum number of drugs/encounters were 7.

Average number of drugs per encounter were 3.02 of which 11.7% were injections per encounter and 21.5% drugs per encounter were antibiotics (Table I). Among antimicrobials the most commonly prescribed was amoxicillin and clavulanic acid fixed dose combination followed by cefixime, azithromycin, doxycycline, ciprofloxacin.

3.7 % drugs were prescribed by generic name and 36.4 % drugs were prescribed from the essential drug list (EDL) (Table II). 190 (89.2%) prescriptions were legible and 23 (10.7%) prescriptions were legible with difficulty.

DISCUSSION:

The average number of drugs per prescription in this study was 3.02 which is high as compared with the standard (1.6-1.8) as accepted by previous studies.[9] A similar study showed, average number of drugs per prescription to be 3.8±1.3 which was close to the findings of this study. Other studies have shown variable range (1.9 to 8.8) of average number of drugs per prescription.[3]

Analgesics and antibiotics are among commonly prescribed drugs in previous studies. Emergence of resistance is a problem with overuse of antibiotics. Moreover, additional cost due to extravagant prescribing is burden for the patients. Percentage of encounter with antibiotics in the study was 21.5% which was comparable to the standard (20.0%-26.8%) as accepted by previous studies.[9,10]

In this study percentage of encounter with injections prescribed was 11.7% which was close to the standard value of 13.4- 24.1% as accepted by previous studies. Lower percentage of prescribed injectables have also shown by Desalegn et al[9] (6.3%), Upendra G et al[5] (3.8%), Ragam et al[11] (8.33%). Some studies have shown higher percentage (30.1%) of injection prescribed than the standard value.[3]

The Medical Council of India, through MCI circular no. MCI-211(2_(Gen.)/2017- Ethics/104728 dated April 21, 2017 had advised to all physicians to prescribe drugs with generic name. Drugs prescribed by generic name, in the study was only 3.7 % which was clearly lower when compared to the ideal standard value of 100% as accepted by previous studies. Similar studies have also shown too low percentage of prescription by generic names.[5,11] On the other hand study done by Upadhyay D et al[3] showed 71.8% and that shown by Desalegn et al[9] showed 98.7% of prescription by generic names which was nearly same as the ideal WHO recommendation of 100%.

Percentage of drugs prescribed from essential drug list (EDL) in this study was only 36.4% whereas that accepted as standard is 100% in previous studies.[3] In a study, 96.6% of drugs prescribed from EDL which was very close to the standard value.[9] On the other hand some studies have shown low percentage of drugs prescribed from EDL or NLEM similar to this study. Upendra G et al[5] showed only 29.8%, Ragam et al[11] showed 49.30% and Upadhyay D et al[3] showed 56.2% drugs prescribed from EDL.

The present study had some limitations. One of the major ones is that the differences between individual prescribers has not been assessed. Also, due to lack of resources there was inability to meet recommended sample size of 600 prescriptions by WHO which is taken standard by many earlier studies.

CONCLUSION:

In this study most of the prescribing indicators were not in accordance with the standard values except the percentage of encounter with antibiotics and injections. The average number of drugs per prescription was higher than recommended. Drugs prescribed by generic name and those prescribed from EDL were very low in percentage than recommended. There was low compliance with WHO core prescribing indicators with polypharmacy being common. Regular prescription audit is required to improve the prescribing practices. Also, physicians should be oriented through various training programmes on prescribing practices and the standard values recommended by the WHO to ensure rational drug use.

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