Drug Utilization at the Out-Patient Department of the Teaching Hospital of Jaffna

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Abstract - Rational use of medicines reduces the risk and wastage and increase the benefits to the patients. Drug utilization studies describe pattern of drug use in health facilities which in turn help to optimize the drug use and promote rational use of medicines. Prescription is a valuable tool to get information regarding drug utilization. This study has been designed to describe the drug utilization using drug use indicators at the out-patient department (OPD) as preliminary step to optimize the drug use at Teaching Hospital, Jaffna. In this study fourteen drug use indicators were used to determine the drug utilization pattern at OPD of Teaching Hospital Jaffna. They are WHO prescribing indicators: 1) average number of drugs per encounter, 2) percentage of drugs prescribed by generic name, 3) percentage of encounters with an antibiotic, 4) percentage of prescriptions with an injection, 5) percentage of drug prescribed from essential medicines list/ formulary; WHO facility indicators: 6) availability of essential medicines list, 7) availability of key drugs; WHO complementary indicators: 8) percentage of patients treated without drugs, 9) average drug cost per encounter, 10) percentage of drug cost spent on antibiotics, 11) percentage of drug cost spent on injections and indicators developed by investigators: 12) percentage of prescriptions with the documentation of reason for prescribing a drug, 13) percentage of drugs prescribed for common diseases, and 14) percentage of complete prescriptions in terms of dose, dosage form, frequency, duration and route of administration. It is a hospital based cross sectional study and total of 640 prescriptions containing 1834 drugs on a single day were collected and analyzed. Results show that some indicators such as percentage of prescription with injection (2.7%), percentage of drugs prescribed from essential medicine list (95.6%) and percentage of prescriptions with the documentation of reason for prescribing a drug (76.4%) are satisfactory. However, important prescription indicators are unsatisfactory particularly percentage of drugs prescribed by generic name (41.4%), encounters with an antibiotics (71.9%) and completeness of prescription (0.0%). The study concludes that overall prescribing practice is unsatisfactory and indicates the urgent need of adequate training for prescribers and developing monitoring system for prescribing and use of antibiotics.
Keywords: Drug utilization, indicators, OPD, prescriptions.

INTRODUCTION

World Health Organization (WHO) stated that "more than half of all medicines are prescribed, dispensed or sold inappropriately, and that half of all patients fail to take them correctly" [1]. Therefore it is very important to optimize the drug use. Drug utilization researches are usually required to ensure the appropriate drug use in health facilities [2]. Drug utilization research describes "the extent, nature and determinants of drug exposure; it is an important part of pharmacoepidemiology" [2]. Drug use pattern reveals "the extent, profiles of drug use, trends in drug use and cost over the time" [2].

Medication prescription, a valuable tool used for the prevention and treatment of diseases of patients and analyzing prescriptions could give valuable information regarding drug utilization [2]. There are many methods available to evaluate the drug use pattern including WHO drug use indicators. The WHO drug use indicators are widely accepted as a global standard for analyzing the current drug utilization status and for problem identification [3]. These drug use indicators are developed in order to assess the drug use pattern in Out Patient Departments (OPD) [3]. The WHO drug use indicators are created to measure important aspects of the drug usage in health organizations in a reproducible way, without considering who collects the data or when the data are collected [3].

There are twelve WHO core drug use indicators namely, core prescribing indicators (5) measure the performance of healthcare providers, patient care indicators (5) describe the extent of care and experience gathered by the patient and facility indicators (2) give a picture of the ability of the features having opportunity to help rational prescribing respectively [3]. In this study WHO core indicators that directly give information regarding drug utilization (prescribing and facility indicators) were used. In addition, WHO complementary indicators and indicators developed by investigators that assess the drug utilization were also used.

Drug utilization studies are limited in our country, particularly in the northern region. This study has been designed to describe the drug utilization using drug use indicators at the OPD as an initial step in developing and implementing strategies to optimize the drug use at Teaching Hospital, Jaffna.

METHODS AND MATERIALS

It is a hospital based cross sectional descriptive study carried out in November 2015 at the OPD of Teaching Hospital, Jaffna. World Health Organization recommends that a cross sectional study describing current treatment practice should analyze at least 600 prescriptions and higher number whenever possible [3]. Therefore we estimated the sample

size as 600 or more. Ethical clearance was obtained from Ethical Review Committee, Faculty of Medicine, University of Jaffna (ref no: J/ERC/15/66/NDR/0134).

A data extraction form was developed based on WHO data collection forms to extract the data from prescriptions [3]. The data extraction form consisted four parts namely, 1. Detailed indicators encounter form, 2. Prescribing indicator form, 3.Checklist for drugs and dosage form and 4. Complementary indicators form.

In this study fourteen drug use indicators were used which included five WHO core prescribing indicators, two facility indicators, four WHO complementary indicators and three indicators developed by investigators.

WHO core indicators; WHO Prescribing indicators: 1) average number of drugs per encounter (prescription), 2) percentage of drugs prescribed by generic name, 3) percentage of encounters with an antibiotic prescribed, 4) percentage of prescriptions with an injection prescribed, 5) percentage of drug prescribed from essential medicines list/ formulary. WHO Facility indicators: 6) availability of copy of essential medicines list/ formulary, 7) availability of key drugs.

WHO complementary indicators: 8) percentage of patients treated without drugs, 9) average drug cost per encounter, 10) percentage of drug cost spent on antibiotics, 11) percentage of drug cost spent on injections.

Indicators developed by investigators: 12) percentage of prescriptions with the documentation of reason for prescribing a drug, 13) percentage of drugs prescribed for common diseases, 14) percentage of complete prescriptions in terms of dose, dosage form, frequency, duration and route of administration. We collected all the OPD prescriptions that were prescribed on a single day (n=640) and data were extracted using the data extraction form. Above-mentioned drug use indicators were used in the data analysis. Simple descriptive statistics were used to present the results.

RESULTS AND DISCUSSION

Total of 640 prescriptions containing 1834 drugs written by 11 OPD medical officers on a single day were analyzed. Standard values for WHO core prescribing indicators by Isah et al. (1997) were used to interpret the results of core prescribing indicators [4].

WHO *core prescribing indicators*

Average number of drugs per encounter was 2.9 (SD=1.1) which was higher than standard value (1.6 - 1.8). The number of drugs prescribed depends on the distribution of population characteristics. If there is a higher proportion of older patients with multiple pathology, number of drugs per encounter tend to be higher. However, Teaching Hospital OPD deals with inter-current illnesses while chronic conditions are treated at outpatient clinics and chances for prescribing for multiple pathology at OPD are less likely. Therefore, the result indicates the need for optimizing the drug use at the OPD.

Percentage of drugs prescribed by generic name was 41.4% which should be 100% and 20.7% and 37.9% of drugs were prescribed in brand names and abbreviations respectively. Prescribing in brand names or abbreviations is not an accepted practice and this kind of prescribing tendency should be changed.

Percentage of encounters with an antibiotic prescribed was 71.9% which was much higher than the standard range (20.0-26.8%). About 4.1% of total prescription were prescribed with two antibiotics. Most commonly prescribed antibiotic was amoxicillin 190 (10.3%). Very high utilization of antibiotics indicates the urgent need for monitoring the use of antibiotics. Percentage of encounters with an injections prescribed was 2.7% that is well below the standard range (13.4 - 24.1%). Reason for the lower value could be that these prescriptions are from the OPD and in our setting only a limited injections are prescribed at the OPD [anti-rabies vaccine 9(0.5%), anti-rabies serum 4(0.2%) and tetanus toxoid 8(0.4%)].

Percentage of drugs prescribed from essential drug list was 95.6% which was satisfactory (standard value 100%).

WHO *facility indicators*

Availability of the key drugs was 87.5%. Level 1 and level 2 drugs in the National List of Essential Medicines, Sri Lanka 2013-2014 (NLEM) are considered as the key drugs in this study [5]. At the time of the study NLEM was not available at the OPD. Despite the unavailability of NLEM at the facility almost all the key drugs are available at the OPD pharmacy.

WHO *complementary indicators*

Percentage of patients treated without drugs was 0.47% which indicates almost all the patients received at least one drug. Average cost per prescription was LKR 66.45. Here only the cost of the drugs were considered for calculation. Therefore cost per prescription does not include the service related costs. Eighty percentage of total cost is spent for injections and antibiotics (43.1% for injections and 36.9% for antibiotics). Even though injections were used in small proportion of patient (2.7%), large amount of money was spent on injection. This is because injections are expensive.

Indicators developed by investigators

Percentage of prescriptions with the documentation of reason for prescribing a drug was 76.4% this is fairly satisfactory. Percentage of drugs prescribed for top five common conditions was 69.5% and the conditions were namely respiratory tract disorders (40.4%), ache and pain (9.6%), skin and soft tissue conditions (9.5%), fever (5.8%) and gastro intestinal tract conditions (4.2%). None of the prescriptions were complete in terms of dose, dosage form, frequency, duration and route of administration. Almost one fourth (25.7%) of the drugs had four components, 46.1% had three components and drugs had only two and one component were 12.9% and 12.1% respectively. 3.2% of drugs did not have any of these components. Dose was available for 92.3% of the drugs prescribed, 81% had frequency of administration and duration of therapy was indicated for 74.4% of drugs.

Dosage form and route of administration were indicated for 17.7% and 13% of drugs respectively. Though overall completeness of the prescription was unsatisfactory, majority of the prescriptions had the information on dose, frequency and duration of therapy.

CONCLUSION

Even though few prescription indicators such as percentage of prescription with injection, percentage of drugs prescribed from essential medicine list and percentage of prescriptions with the documentation of reason for prescribing a drug are satisfactory, most of the prescription indicators are unsatisfactory particularly percentage of drugs prescribed by generic name, percentage of encounters with an antibiotics and completeness of prescription.

Though the availably of the key drugs is satisfactory, NLEM was not available at the facility. This study also shows that large proportion of the money is spent on injections and antibiotics.

Overall the practice need to be improved particularly in the use of generic names in prescriptions, use of antibiotic, completeness of prescription. Prescribers also should get adequate training in prescribing and mechanism for regular monitoring of prescribing practice need to be incorporated in the system.

ACKNOWLEDGMENT

We would like to thank Director, Senior Medical Officer of OPD, Medical Officers of OPD, Chief Pharmacist and OPD Pharmacists of Teaching Hospital, Jaffna.

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