

Evaluation of Prescription Pattern for Internal Medicines Outpatients using World Health Organization Indicators

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Abstract

Rational use of drugs plays an important role in efficacy and safety. World Health Organization (WHO) developed a set of indicators to assess medicines prescribing pattern. The aim of this study was to evaluate the rational use of drugs among internal medicines outpatients at a hospital in Papua, Indonesia, using WHO prescribing indicators. This study was a retrospective observational study conducted during January-March 2014. The data were obtained from patients medical prescriptions. From each prescriptions, data regarding the the total number of drugs, generic, antibiotics, parenteral, and essential drugs were extracted. A total of 2025 medical prescriptions were included in this study. We found out that the average number of drugs per prescription was 2.3. Majority of the prescribed drugs were generic (84.14%). The use of antibiotics, parenteral drugs, and essential drugs were 33.43%, 3.40%, and 60.13%, respectively. Polypharmacy was relatively low among the subjects. The medicines prescribing patterns among internal medicines outpatients were in accordance with WHO recommendation.

Keywords: prescribing indicator, polypharmacy, essential drugs

Introduction

World Health Organization (WHO) defines rational drug utilization as the use of right medicine in an adequate dose for an adequate duration, with appropriate information and follow-up treatment, and at an affordable cost. Rational use of drug plays an important role in efficacy and safety of the drugs.¹

Irrational use of drugs includes over or under prescribing, polypharmacy, no indicated drug prescription, and inappropriate use

of antibiotics. Inappropriate prescribing of antibiotics could lead to antibiotic resistance, prolonged the duration of the treatment, and increased cost. The prescription of generic and essential drugs is important to ensure that the medicine is accessible for the population.^{2,3}

This study was aimed to investigate prescribing pattern for general internal medicines outpatient in Indonesia. WHO prescribing indicators were chosen as the

assessment tools because it is cross-culturally valid. Its evaluation includes the assessment of total number of drugs, generic drugs, antibiotics, parenteral drugs, and essential drugs.^{4,5}

Methods

This study was a retrospective observational study conducted during January-March 2014 at internal medicines unit in a hospital in Papua, Indonesia. The data were obtained from outpatients medical prescriptions.

From each prescriptions, data regarding the the total number of drugs, generic drugs, antibiotics, parenteral drugs, and essential drugs were extracted. Informed consent was not needed since retrospective study could not change the outcome of the therapy. The percentage of generic, antibiotics, parenteral, and essential drugs were calculated by comparing the number of these drugs to the total number of drugs.⁶

Results and Discussion

The total number of prescriptions during study period were 2025 prescriptions with 4731 drugs. The average number of drug per prescription was 2.3. Majority (84.14%) of the drugs in the prescriptions were generic. The use of antibiotics and essential drugs were 33.43% and 60.13%, respectively.

Only 3.4% drugs were parenteral.

The number of drugs are related with polypharmacy. Among study population, the prevalence of polypharmacy is relatively low. Polypharmacy is the use of ≥ 5 medications per prescription, which often includes unnecessary drugs. It can increase the risk of drugs interaction, low adherence to medication, and adverse drug reactions.^{7,8}

Indonesian regulation obligates the prescription of generic drugs to ensure accessibility of medication to all population. In this study, the majority of prescribed drugs were generic drugs. This finding was comparable with previous study showing the prescription of of generic drugs in the range of 14.58-100%.⁹

Antibiotics are used for the treatment of bacterial infections. Irrational use of antibiotics could lead to antibiotic resistance, ineffective therapy, and increased expenditure on healthcare. A study conducted in Turkey showed that the prescription of antibiotics in this region was in the range of 29.7-33.8%.^{10,11} The most frequently used antibiotics in this study were cefixime, cephadroxil, and cotrimoxazole. The most common infections were upper respiratory track infection (URTI) and urinary tract infection (UTI).

Table 1. Drug utilization data

Month	Number of Prescriptions	Drugs/ Prescription	Generic	Antibiotic	Parenteral	Essential
January	637	1589	1374	226	35	951
February	747	1583	1323	260	24	968
March	641	1559	1284	191	10	926
Total	2025	4731	3981	677	69	2845
Mean	-	2.33	-	-	-	-
Percentage	-	-	84.14%	33.43%	3.40%	60.13%

Table 2. Antibiotic use

Antibiotic	Total use	Percentage	Diagnosis
Cefixime	327	49.92	URTI, UTI
Cephadroxil	175	26.71	URTI
Cotrimoxazole	34	5.19	Gastrointestinal Infection (GI)
Amoxicillin	27	4.12	URTI
Ciprofloxacin	15	2.29	Appendicitis, UTI
Rifampicin	12	1.83	Tuberculosis (TB)
Isoniazid	12	1.83	TB
Ceftriaxone	11	1.67	URTI
Cefotaxime	9	1.37	GI
Ethambutol	7	1.06	TB
Pyrazinamide	7	1.06	TB
Gentamicin	5	0.76	Abcess
Doxycycline	4	0.61	Malaria
Azithromicine	3	0.45	Stomatitis
Metronidazole	3	0.45	Colitis
Erythromicine	2	0.30	Pharyngitis
Levofloxacin	1	0.15	Lymphadenitis
Amoxicillin-clavulanat	1	0.15	Lymphadenitis
Total	655	100	

Only 3.40% of drugs were parenteral. The reconstitution of the intravenous preparation should be performed in appropriate method to prevent contamination and ensure the right dose. Essential drugs are the list of drugs that satisfy the priority health care needs of the population and should be available in sufficient amount and affordable price at most health care facilities. The essential medicines list enables health authorities to optimize pharmaceutical resources.^{12,13}

Conclusion

The medicines prescribing patterns among internal medicines outpatients were in accordance with WHO recommendation.

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Conflict of Interest

None declared.

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