ASSESSMENT OF DRUG PRESCRIPTION USING THE WORLD HEALTH ORGANIZATION (WHO) INDICATORS AT A PUBLIC HOSPITAL

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Abstract

Background: Drug use is one part of drug management cycle which covers selection, procurement, distribution, and use. The World Health Organization (WHO) has provided the WHO core drug use indicators (version 1993 and 2004) to promote rational drug use in developing countries.
Purpose: This study aimed to assess drug prescription pattern using WHO prescribing indicator at a public hospital in Indonesia, as a pilot study for further larger studies.
Material and Methods: This was a cross-sectional study conducted in one district hospital in Central Java Province, Indonesia. Data was collected retrospectively from recipes of outpatients visiting the district hopsital in the period of two years from 1 January 2015 to 31 December 2016 to examine the time trend performance. In total, 1218 recipes consisting of 609 recipes for each year were included in the analysis. Data was analyzed in accordance with WHO prescribing indicator version 2004.
Results: The average number of drugs prescribed per encounter in year 2015 and 2016 were 3.0 and 3.1, respectively (WHO standard: 1.6 – 1.8). The percentage of drugs prescribed by generic name in year 2015 and 2016 were 63.9% and 68.2%, respectively (WHO standard: 100%). The percentage of encounters in which an antibiotic was prescribed in year 2015 and 2016 were 37.8% and 34.3%, respectively (WHO standard: <30%). The percentage of encounters in which an injection was prescribed in year 2015 and 2016 were 1.1% and 3.1%, respectively (WHO standard: 13.4% – 24.1%). The Percentage of drugs prescribed from hospital formulary in year 2015 and 2016 were 96.9% and 98.2%, respectively (WHO standard: 100%).
Conclusion: The prescribing practices tended to show better pattern by time, indicated from lower deviation from WHO prescribing indicator 2004. The most problem of prescribing practices from this study was the high average number of drugs prescribed per encounter which leads to polypharmacy. The other problems of prescrribing practices were the low percentage of drugs prescribed by generic name and high percentage of encounters with antibiotic. This problems tended to increase treatment cost.

Keywords: prescribing pattern, rational drug use, WHO core drug use indicators, primary healthcare center, public hospital

Introduction

- Rational use of drugs requires that “patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community” (WHO, 1985).
- The irrational use of drugs is a serious problems that can cause adverse drug reactions, increased morbidity and mortality rates, wasted resources and higher out-of-pocket costs to patients and society.
- The World Health Organization (WHO) suggests a set of drug use indicators to describe the drug use situation in a country, region or individual health facility.
- Prescribing indicators have been applied in several studies at different level of health facilities of primary healthcare and referral healthcare in different regions of the world.
- Evaluation of drugs prescribing using WHO prescribing indicators are aimed to guide such program for improving rational use of drugs.

Methods and Materials

- This study was a cross sectional study conducted at a district public hospital in Central Java Province, Indonesia.
- Data were collected retrospectively from patient encounters of out-patient in the year 2015 and 2016.

Table 1: Distribution of study sample

Year	Number of population	Insurance scheme	Number of population	Sample size	Total Sample
2015	46.034	Non-UHC	12.585	148	609
		UHC	33.449	461	
2016	48.040	Non-UHC	10.333	124	609
		UHC	37.707	485	

- Data were analyzed using descriptive statistic to describe the prescribing patterns based on WHO prescribing indicators.

Table 2: Summary of data analysis

Prescribing indicators	Calculation
Average number of drugs prescribed per encounter	Number of drugs : number of encounters
Percentage of drugs prescribed by generic name	(Number of drugs prescribed by generic name : Number of drugs) x 100%
Percentage of encounters with an antibiotic	(Number of encounters with antibiotic : Total number of encounters) x 100%
Percentage of encounters with an injection	(Number of encounters with injection : Total number of encounters) x 100%
Percentage of drugs prescribed from hospital formulary	(Number of drugs in accordance with hospital formulary : Total number of drugs) x 100%

Results and Discussions

Table 3: Summary of prescribing pattern

Prescribing indicators	Total drugs/encounters		Average/ percentage		Standard value	
	2015	2016	2015	2016	WHO (1993)	WHO (2004)
Average number of drugs per encounters	1895	1898	3.0	3.1	1.8-2.2	1.6-1.8
Percentage of drugs prescribed by generic	1211	1294	63.9	68.2	82%-94%	100%
Percentage of encounters with antibiotics	230	209	37.8	34.3	<22.7%	<30% (20.0%-26.8%)
Percentage of encounters with injection	7	19	1.1	3.1	Minimum	13.4%-24.1%
Percentage of drugs from essential drug list	1837	1866	96.9	98.2	100%	100%

✓ Average number of drugs per encounters
Indicator of average number of drugs per encounters is used to investigate polypharmacy in drug prescribing for a patient. The average numbers of drugs per counters in this study were above the WHO standard. In this study, the encounters with many drugs were indicated for patients with chronic diseases and geriatric patients that might required much more medicines.

✓ Percentage of drugs prescribed by generic
The Percentages of drugs prescribed by generic name found in this study were lower than WHO standard although there has been regulatory of mandatory for prescribing drugs by generic name in government health facilities. This might be due several drugs were not available in generic product such as opthalmic preparation and insulin.

✓ Percentage of encounters with antibiotics
Higher use of antibiotics might potential to increase antibiotic resistance. Percentages of antibiotic use in this study were slightly above the WHO standard. The most antibiotic used was cefadroxyl, which was indicated for post-operative treatment.

✓ Percentage of encounters with injection
The Percentage of encounters with injection found in this study was quite low compared to WHO standard. The low percentages due to minimum use of injection in out patient services.

✓ Percentage of drugs from essential drug list
Finding from this study shows slightly deviation from WHO standard. This findings show that the prescriber obey the regulatory for prescribing based on drugs listed in hospital formulary.

Conclusions

- The prescribing practices tended to show better pattern by time.
- The most problem of prescribing practices from this study was the high average number of drugs prescribed per encounter which leads to polypharmacy.
- The other problems of prescrribing practices were the low percentage of drugs prescribed by generic name and high percentage of encounters with antibiotic. This problems tended to increase treatment cost.

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