INVESTIGATION OF THE RATIONAL MEDICINES USE AMONG PREGNANT WOMEN IN SUDAN HOSPITAL

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ABSTRACT

Objective: This study was undertaken to evaluate the prescription rationality and to investigate the Rational Drug Use in Health care facility (Hospital) among pregnant women. Methodology: This was a cross sectional retrospective study based on outpatient departments involving visits to the hospital and collecting data from the patient’s records. The study was carried out in the period from January 2012 through June 2012. Data were collected from the patient treatment records. The collected data were entered and processed by the help of the Statistical Package for Social Science and the Results were expressed in percentage and Microsoft Office Excel 2010 was used to interpret the collected data into charts and tables using its powerful formulas and graphs. Results: Using World Health Organization standard indicators of rational drug use with a low rate of prescribing drugs by generic name (48.67%), and an average of medicines per encounter of (4.15%). The proportion of prescriptions for antibiotics was (72.5%), for injectable drugs (77.5%). A high percentage of drugs were prescribed from essential drugs list was available in (61.44%) of encounters. Conclusion: The findings of the present study indicate that the average number of drug per prescription was significantly higher than recommended by World Health Organization. The drugs prescribed in the generic names were remarkably lower. Majority of
the prescribed drugs were not in accordance with the World Health Organization model of essential list. This study confirmed the observations of inappropriate prescribing and showed that the health care systems need to be up graded.

**KEYWORDS:** Rational use, Essential medicine list, Pregnant women.

**INTRODUCTION**
Medically improper, ineffective and economically inefficient use of pharmaceutical products are commonly observed in health care systems throughout the world, particularly in developing countries. A number of inappropriate prescribing often remain unobserved by professionals involved in health sector, decision making or delivery of health services. This problem usually arise to the attention of decision makers or managers when there is an acute shortage of pharmaceutical budget that requires action for cost-efficiency.

Supporting appropriate use of drugs in the health care system is required, this is not only because of the financial reasons where policy makers are highly concerned. Appropriate use of drugs is also one of the essential element in order to achieve better health quality, medical care for patients and the community. It is well known that quality of healthcare is highly dependent on practitioners. Therefore, required actions and intervention programs to promote the proper use of drugs should, therefore, be continuously applied systematically and to incorporated it as an integral part of the health care system.

Rational drug prescribing has been a key subject of several studies. The World Health Organization (WHO) compiled a set of core data for drugs as an indicators which provide specific studying patterns prescribing in health care system. Prescriptions can be used as an official documents holding information of prescriber and dispensing pharmacist, who are responsible for any transgression in prescription or/and dispensing. Therefore, an ideal prescription should carry all necessary information, such as name, age, sex, and full address of the patient, in addition to a brief diagnosis (i.e. patient history) of the condition targeted by the drug treatment. In addition, the prescription should include name, address, signature and a contact number and medical license number.[1]

Rational use of drugs needs that patients receive medicines suitable to their clinical needs, doses that meet their own individual necessities for suitable period of time, followed by the lowest cost to them and their community. The requirements for rational use will be achieved,
if the process of prescribing medicines are appropriately followed. This process includes various steps; identifying patient’s problems (or diagnosis); followed by safe treatment via selecting an appropriate medications (including dose and duration) in a documented report for individual patient and planning to evaluate treatment responses.\[^{[2]}\]

In order to reduce both morbidity and mortality from communicable and non-communicable diseases, and to containing drug expenditure the use of medicines should be improved by the health workers and general public. Ideally, therapeutically active and profitable use of medicines by health professionals and consumers is achieved at all levels of the health system (including both general public and private sector). The following three elements are effective and better for rational drug use.

- Rational use of medicines approach and monitoring; promoting rational medicines use, identifying and promoting successful approaches, and securing responsible medicines promotion.
- Rational use of medicines by health professionals; working with various countries to develop and update their treatment guidelines, national essential medicines lists and formularies, and supporting training programs on rational use of medicines.
- Rational use of medicines by consumers; supporting the establishment of effective systems of medicines information, and allowing consumers to take responsible decisions regarding their treatment.\[^{[3]}\]

According to definition of WHO (1985), rational drug use is; “obtaining the appropriate drug in suitable duration and dosage, at the lowest price and with simplicity according to the clinical findings and personal characteristics”. Thus, we can identify the principles of rational drug use as.

- Being based on true diagnosis.
- Choosing the appropriate drug; prescribing it in a suitable dosage form and in suitable way within the scope of treatment plan and using it in suitable length.
- Measuring the success of treatment; observing side effects and patient compliance.
- Measuring drug interactions if more than one drug is used.
- Considering cost and effectiveness.\[^{[4]}\]
MATERIALS AND METHODS

Study design /type
This was a cross sectional study based on outpatient departments involving visits to the hospital and collecting the data from the patient’s records. The data collection was retrospective in nature.

Study Duration
The study was carried out in the period from January 2012 through June 2012.

Study Area
Yastabshiroon for Obstetrics and Gynecology and Neonatal Care Khartoum State

Study Population
I. Targeted Population: All pregnant patients attending Yastabshiroon hospital for Obstetrics and Gynecology and Neonatal Care who delivered during the year 2012.
II. Specific Population: medications being prescribed to the pregnant women from the hospital admission date until the delivery.

Variables under Study
(a) Independent variables
- Demographic data and Personal data; including the date, number of drugs per prescription, age and gender.
(b) Dependent variables (outcome measures):
- Average number of drugs.
- Percentage of antibiotics.
- Percentage of injections.
- Percentage of generics.

Inclusion and exclusion criteria
I. Inclusion criteria
- Pregnant women who came for delivery.
II. Exclusion criteria
- Woman’s who had a history of miscarriage were excluded from the study.
- Woman’s who has gynecological problems.
- Woman’s who has urogenital abnormalities.
Sample Size
Total coverage of cases during the study period of six months.

Data Collection Tools
Patient’s treatment profiles were examined during the period from January through June 2012 using data collecting sheet (Appendix) World Health Organization prescribing indicator form.\(^5\)

Data Collection Procedure
Data were collected from the patient treatment records.

Data Entry & Analysis
The data collection forms (Appendix) were checked for completeness before data processing then will be entered regularly into Statistical Package for Social Science (SPSS) ver.19; where it will be analysed according to the objectives of the study. Results were expressed in percentage and Microsoft Office Excel 2010 was used to interpret the collected data into charts and tables using its powerful formulas and graphs.

Ethical Considerations
Permission was taken from the hospital to access the patient records.

RESULTS AND DISCUSSION
All the data were presented in the form of tables, pie and bar charts.

Table .1: Analysis of Prescriptions (Prescribing indicators encountered) (n=200).

<table>
<thead>
<tr>
<th>Prescribing Indicator</th>
<th>Value obtained</th>
<th>Reference value(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of prescriptions</td>
<td>200</td>
<td>-</td>
</tr>
<tr>
<td>Total number of drugs prescribed</td>
<td>830</td>
<td>-</td>
</tr>
<tr>
<td>Average number of medicines per encounter</td>
<td>4.15</td>
<td>(1.6 – 1.8)</td>
</tr>
<tr>
<td>Percentage of medicines prescribed by generic name</td>
<td>48.67%</td>
<td>100</td>
</tr>
<tr>
<td>Percentage encounter with antibiotics</td>
<td>72.5%</td>
<td>(20 – 26.8)</td>
</tr>
<tr>
<td>Percentage encounter with injectables</td>
<td>77.5%</td>
<td>(13.4 – 24.1)</td>
</tr>
<tr>
<td>Percentage of medicines prescribed form the Essential Drug List</td>
<td>61.44%</td>
<td>-</td>
</tr>
</tbody>
</table>
Fig.1: Distribution of total number of prescribed drugs (n=200)

Fig.2: Distribution of total number of generic drugs prescribed (n=200)

Fig.3: The presence of antibiotics in the prescription (n=200)
The aim of the present study was to investigate the rational use of drugs in a hospital facility. Rational drug use in pregnancy requires the balancing of benefits and potential risks associated with the use of the drug. The benefits of rational drug use during pregnancy are not only restricted to the recovery of maternal health, but are also helpful in the development of the fetus.

The different prescribing parameters and the distribution of different categories of drugs in the prescriptions analyzed in this study provided an insight into the prescribing behaviour of the physicians at Yastabsheroon Hospital. Use of generic names in prescription eliminate the chance of duplication of drug products and also reduce the cost of the drug on the patient. In our study, low percentage of the drugs were prescribed in generic names (48.67%) the reason behind these results may be attributed to the fact that the doctors are concerned by the patients satisfaction or the patients requests for a prescription of a brand name of medicines.
also prescribing by brand name takes less time. However our study results were lower when compared to a similar type of study conducted in Sudan 1991\(^6\) where they found 63% of the medicines prescribed by their generics, and a little higher when compared with the latest survey conducted in Sudan in 1998.\(^6\) With 41% of the medicines prescribed by generics also compared to the results of the same study in 2004\(^6\) having generic prescription of 43% revealing that the prescribing is worsening along the years. Another study conducted in 2013 examining the same indicators\(^7\) Where 96% of prescriptions use generics much higher than all the previous studies. The last study conducted in Nigeria\(^8\) reveals a lower generic use 43% than our study.

Average number of drugs per prescription reported in this study was (4.15) When compared to the study conducted in Sudan\(^9\) average number of medicines per prescription was (2.3) and in 1991 survey the average was (1.4)\(^6\) and in 1998 survey conducted by the same author \(^6\) the average was (2.1)\(^6\) and in the last survey in 2004 the average was (1.9)\(^6\), in another study conducted by Gawde. S.R\(^7\) the average number of drugs per prescription was (2.27), the last study in Nigeria\(^8\) revealed an average of (3.0) Since, WHO has recommended that average number of drug per prescription should be (1.6-1.8).

The average number of drugs prescribed per encounter in the antenatal clinics differs from the standard set by World Health Organization. The results of our study reflect polypharmacy which may lead to adverse drug reactions, decrease adherence to drug regimens and unnecessary drug expenses.

In contrast, some cases polypharmacy can be acceptable in medical department that encounter higher number of prescriptions with a larger number of drugs prescribed for chronic clinical conditions like hypertension and diabetes, in this case the patients can require more drugs than as stated by World Health Organization.

Antibiotics in our study accounted for 72.5% of the total number of prescribed drug was higher in the present study as compared to similar studies done in Sudan\(^8\) where the antibiotics pre encounter was 66%, in 1991 survey\(^6\) The antibiotics encountered was 63% in the same survey 1998 the antibiotics encountered was 59% and in 2004\(^6\) the encounters were 65% as compared to the previous two surveys done in Sudan, Uchena\(^8\) study has the least antibiotics per encounter 8.8%, our present study with high percentage results indicates the Irrational use of antibiotics. The over prescription of antibiotics may be due to the
pressure on physicians and patients demands is considered the first reason why the antibiotics are over or misused.

Also, it was observed that there is an overuse of injections in our study 77.5% is much higher than all other similar studies, where 27% per encounters in Izeham[9] study and 36% in Awad study 1991[6], much lower in 1998 29%[6] and lastely10.5% in the same survey 2004.[6] This indicates the overuse of injectable route, the reason behind that could be due to the patient preferences and the practicability of the injectable route more than other routes.

The last indicator in our present study was the prescribing from the Essential Drugs List in this study it was accounted for 61.44% as compared to the survey conducted in Sudan in 1991[6] the percentage of drugs prescribed from Essential Drugs List was found to be 63% and in the same survey in 1998[6] the percentage was elevated to 99% of encounters prescribed form the Essential Lists.

This over-prescribing may lead to complexities in monitoring, confusion due to different instructions and risk of drug interactions and contraindications. One possible explanation for overprescribing is patient demand, i.e. patients prefer doctors who prescribe more drugs because they think this will ensure improvement and cure of their condition quickly.

In Fig.1: which represents the total number of encounters per prescription and showing a high percentage of polypharmacy; which is more predominant in the prescriptions containing (2-5) drugs.

In Fig.2 where the bar chart represents the distribution of total number of generic drugs per prescription and it revealed that the range of (1-3) drugs has a high percentage (21-31%). Where Fig.3 and 4 represents the presence of antibiotics and injections in a prescription respectively.

Fig.5 represents the Distribution of total number of drugs prescribed from Essential list that the range of (1-4) drugs have a high percentage of drugs prescribed from the Essential Medicines List.

The findings of this study revealed that all pregnant women use drugs throughout the period of pregnancy. It is evident that drug dispensers and pregnant women in the present study have had low knowledge regarding the harmful effects of drugs during pregnancy.
CONCLUSION

The finding of the present study indicates that the average number of drug per prescription was significantly higher than mentioned in the WHO lists. The drugs prescribed by their generic names were outstandingly lower. Majority of the prescribed drugs were not in correspondence with the WHO model essential list.

The results indicate a considerable scope for improving the prescribing pattern in the medical out-patient departments. Irrational prescribing can be avoided by employing the ideal prescription writing. There are evidence that interventions such as short problem-based training course in pharmacotherapy and rational use workshops can improve the prescription behaviour and skills. It is the pharmacist’s role is to ensure that the medications are used safely.

Pharmacist’s involvement in patient care should result in prevention of some and early detection of other Adverse Drug Reactions based on the knowledge of relevant patient and medication factors. Pharmacists can ensure safe prescribing and also have a significant role in educating the health care professional about the detection, prevention and reporting of Adverse Drug Reactions. Pharmacist can also promote Rational Drugs Use by speaking to community groups & by organizing educational programs for the public.

Pharmacy perfectly combines technology and health care system. Health care providers and those responsible for dispensing medicines should take care every opportunity to inform patient about the rational use of drugs, including the use of drugs for self-medication at the time they dispensed. There is a need to educate and counsel women of child-bearing age, regarding the advantages and disadvantages of drug use during pregnancies, with special reference to alternative therapies and self-medication. It is necessary that a drug dispenser should have relevant and updated knowledge and skills regarding dispensing of drugs during pregnancy.

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REFERENCES


3. Available from:

4. Available from:


