

PRESCRIBING PATTERN OF DRUGS IN THE DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY IN EXPECTING MOTHERS IN JAZAN REGION, KSA

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ABSTRACT

Objectives: Careful consideration of the benefit to the mother and the risk to the fetus is required while prescribing drugs during pregnancy. This study was carried out in the city of Jizan to determine the possible irrational use of drugs and drug- drug interactions among the prescribed drugs in pregnant women.

Method: This prospective cross sectional (descriptive) study was carried out in department of obstetrics and gynaecology of Jizan General Hospital in Jizan city (n=1012 prescriptions from the hospital's pharmacy, November 2012–October 2013). The indicators assessed during the current study were average number of drugs, percentage of types of drugs, percentage of patient with prescribed injections, and with prescribed antibiotics.

Result: The average number of drugs per patient was found to be 3.30. The most frequently prescribed drugs were oral iron, folic acid preparations, antibiotics and analgesics. Within the prescriptions the percentage of the drugs according to the categories was: Category A (70.12%), Category B drugs (15.31%), Category C drugs (13.24%), Category D drugs (1.33%), and Category X drugs 0.00% (none). Most common antibiotic prescribed was Cefalexin. Most common antacid prescribed was Ranitidine hydrochloride. The dose and duration of drug usage was clearly mentioned.

Conclusion: Overall drug use pattern is rational with few exceptions. Majority of the drugs were prescribed as per FDA category A, the safest category during pregnancy. Hence we can conclude that poly pharmacy was not practiced as the average number of drugs per prescription was comparable with a standard set by WHO.

Keywords: Drug Prescribing Pattern, Pregnancy, Jazan Hospital.

INTRODUCTION

Pregnancy is a time of profound physiological changes in a woman's body which challenges the clinicians in managing the disease states and selection of medications best suited to treat them.[1] Maternal drug use during pregnancy may pose a teratogenic risk to the fetus, but to avoid all drugs during early pregnancy is unrealistic and may be dangerous also.[2,3] Pregnancy should not deter clinicians from providing their patients with appropriate management of their medical conditions, hence, Prescribing drugs in pregnancy is an unusual risk benefit situation.[4,5]

In 1979, the United States Food and Drug Administration (FDA) introduced a system of rating pregnancy-risk associated with pharmacological agents, which categorized all drugs approved after 1983 into one of five pregnancy risk categories (A, B, C, D, and X). It indicates the effect of the agent on the fetus based on available animal and human data and recommends the degree of precaution that should be undertaken with each drug. [6]

Careful consideration of the benefit to the mother and the risk to the fetus is required while prescribing drugs during pregnancy. Reduction of medication errors and improving patient safety are the important areas of discussion because in this case in addition the health and life of her unborn child is also at stake and may cause serious functional and structural adverse effects in the developing child.[7,8] Performing clinical trials on pregnant women being unethical, it is very difficult to determine the effects of newly marketed drugs on the fetus. Hence, most drugs are not recommended to be used at the time of pregnancy.[9]

Irrational use of drugs is a huge worldwide problem and extra care should be taken especially in pregnancy, for example unnecessary drugs are sometimes prescribed like multivitamins in large quantities for patient without nutritional problems [10] or antibiotics, for patients without evidence of bacterial illness.[11] Drugs may pass from the mother to the fetus putting the fetus at risk especially during the first and early part of the second trimester. The fetus matures very quickly during the fifth week after conception when organogenesis occurs. During this phase susceptibility to

outside influences including medications and their consequent harmful effects increases which may not be evident immediately after birth.[12] Since there are numerous gaps in knowledge about deleterious consequences for the fetus, prescribing drugs to pregnant women should be viewed as a public health issue.[13]

By keeping all of these issues in mind a study was carried out in Jizan to determine the possible irrational use of drugs and drug-drug interactions among the prescribed drugs in the pregnant women. Jizan is situated on the eastern flank of the Red Sea and considered as one of the fastest growing cities in the Kingdom of Saudi Arabia, about 1000 km southwest of Riyadh.[14]

METHOD

This prospective cross sectional (descriptive) study was carried out in department of obstetrics and gynecology of Jizan General Hospital in Jizan City.

The study was designed to obtain information regarding the prescribing pattern of drugs by the medical prescribers and also to analyze the basic information of the patient on the prescription in the department of obstetrics and gynecology. Duration of study period was twelve months (November 2012 to October 2013). A total of 1012 prescriptions belonging to the obstetrics and gynecology patients were collected from the hospital's pharmacy department located in the hospital from November 2012 – October 2013.

The indicators assessed during the current study were average number of drugs per prescription, percentage of types of drugs prescribed to individual patients, details present on the prescription including information about the patient (Name, Age, Sex, Nationality and file no.), Hospital (Name, Department, Unit), identity of the prescriber (Name and signature), consultant – in-charge and the date.

The average number of medicines per patient was calculated by dividing the total number of drugs by the number of patients. Percentage patient with injections, and percentage of patients with antibiotics were determined by dividing the number of times prescribed by the total number of patients respectively and finally

multiplied by 100. All of the patient information (variables) present on the prescriptions were calculated by dividing the total no. of variables by total no. of prescriptions and multiplying it by 100. Data on the United States Food and Drug Administration classification of medicines according to risk to the foetus were obtained based on information provided in the physician's drug handbook.[15]

RESULT

A total of 1012 prescriptions were obtained from the Hospital's Pharmacy. The average number of drugs per patient was found to be 3.30 (range 1-10). Fifty-four different types of medicines and a total number of 3340 medicines were prescribed for the entire period. Table 1 shows the WHO prescribing indicators that were evaluated.

The most frequently prescribed drugs were oral iron, folic acid preparations, antibiotics and analgesics. Prescription pattern among the obstetrics and gynaecology patients observed was like Minerals /Vitamins 45.2%, Antibiotics 19.86%, Analgesics 15.61%, Steroidal progestin 3.55%, Antacids 3.26%, Antiallergens 2.66%, Antifungals 1.58%, Anthelmintics 1.08%, Antihypertensives 0.88%, Expectorants 0.49%, Antiemetics 0.49%, & Others 11.06%.

Minerals and vitamins were the most frequently prescribed medicines. Folic acid 471 (46.4%) was the most frequently prescribed drug. Other minerals and vitamins prescribed included ferrous sulphate 369 (36.5%), calcium 208 (20.61%), some multivitamins and proteins in 24.91% cases.

A total nine types of antibiotics of different classes were prescribed and the percentage of individual class in prescriptions was as Cephalosporins 250 (39.99%), Nitroimidazole antibiotic (Metronidazole) 196 (31.34%), β -lactam antibiotics 108 (17.29%), Macrolides 37 (5.94%), Tetracyclines 17 (2.70%), and Fluoroquinolones 17 (2.70%).

Paracetamol 265 (53.86%) was the most frequently prescribed analgesic and other analgesics included in the prescriptions were

Aspirin 91(18.50%), Diclofenac Sodium 65 (13.30%), Indomethacin 44 (8.94%), and Ibuprofen 26 (5.28%).

Within the prescriptions the percentage of the drugs according to the categories was: Category A drugs in which adequate clinical studies have shown no risk to foetus in any trimester were 70.12%, mainly Folic acid and Ferrous Sulphate. Category B drugs in which Animal studies have not shown adverse effect on the foetus and there are inadequate clinical studies were 15.31%, mainly Amoxycillin, Ampicillin/Cloxacillin, Metronidazole, Azithromycin, Paracetamol, and Diclofenac Sodium. Category C drugs in which animal studies have shown adverse effects, and no adequate clinical studies, may be useful in pregnancy in spite of potential risks were 13.24%, mainly Fluoroquinolones, Ranitidine, Indomethacin and Salbutamol. Category D drugs in which there is evidence of risk to human foetus, but potential benefits may be acceptable despite potential risks were 1.33%, mainly Aspirin and Category X drugs in which animal/human studies show foetal abnormalities, but risks involved clearly outweigh benefits were 0.00% (none). Prescribing of Category X drugs during pregnancy were not seen, Category B and C drugs were common and category A drugs were maximum as shown in table 3.

Most common antibiotic prescribed was Cefalexin. Most common antacid prescribed was Ranitidine hydrochloride. The dose and duration of drug usage was clearly mentioned. Nearly all of the prescribed drugs were from the essential drug list of the hospital.

The study shows the prevalence of some missing items among the studied prescriptions. The leading missing items were the Date of the consultation and Sex of the patient. In contrary almost all physicians mentioned frequency and duration of medication.

Missing items included Family health record number(7.64%), legible Name of the patient (0.82%), Age of the patient (16.34%), Sex of the patient (19.24%), Nationality of the patient (2.42%), Name of the physician (7.24%), Date of the consultation (35.41%) and diagnosis(12.26%) as shown in table 4.

Table 1: Drug prescribing indicators (as per WHO)

Prescribing Indicator	Value obtained	Reference value (as per WHO)
Average number of medicines per patient	3.30 (range 1-10)	1.6 - 1.8
Percentage of patients receiving injectables	5.8	13.4 - 24.1
Percentage of patients receiving antibiotics	19.86	20 - 26.8

Table 2: Frequency distribution of the medicines prescribed

Prescribed Medicines	Total (%)
Minerals /Vitamins	1430 (45.2)
Antibiotics	626 (19.86)
Analgesics	492 (15.61)
Steroidal progestin	112 (3.55)
Antacids	103 (3.26)
Antiallergens	84 (2.66)
Antifungals	50 (1.58)
Anthelmintics	34 (1.08)
Antihypertensives	28 (0.88)
Expectorants	16 (0.49)
Antiemetics	16 (0.49)
Others	349 (11.06)

Table 3: Percentage of drugs used in different categories

Category	Percentage of Drugs
Category A	70.12
Category B	15.31
Category C	13.24
Category D	1.33
Category X	0.00

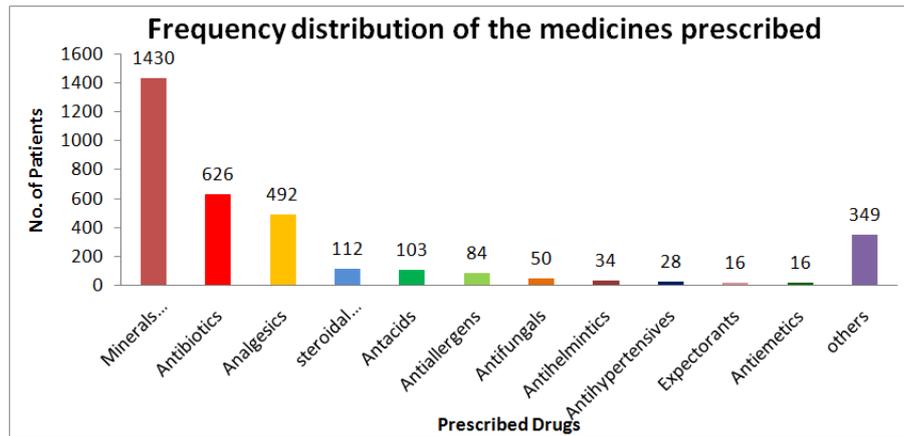


Table 4: Missing information on the prescription

Prescription details	No. of prescriptions (n = 1012) (%)
Patient information	
Name	0.79%
Age	16.70%
Gender	19.66%
Nationality	2.47%
File no.	7.81%
Prescriber's identity	
Name	7.41%
Signature	6.52%
Date of Consultation	36.07%
Diagnosis	12.55%

DISCUSSION

There should be a balance between the benefits and potential risks associated with the rational drug used in pregnancy. The benefit of rational drug is required in pregnancy not only for the recovery of maternal health, but also in the development of the foetus. Premature births, abortions and embryopathies could be prevented by treating conditions like diabetes mellitus and infections of genital organ's.[16,17]

In our study the average number of drugs received during pregnancy was 3.30 per prescription. Folic acid (46.4%), ferrous sulphate (36.5%), calcium (20.61%), some multivitamins and proteins (24.91%) were the most frequently prescribed drugs, along with Antibiotics (19.86%) and Analgesics (15.61%) which was in accordance with earlier studies done in the other countries like Ethopia [18], India [19-21] Finland [22] and Australia [23].

The prescribing indicators also showed that the percentage of prescribed antibiotic was in the range of the standard set by WHO. This is also encouraging, since antibiotics are routine drugs used for most bacterial infections and this could help to minimize drug resistance problems that could be promoted with over usage of antibiotics.

In our study majority of drugs were from category A (70.12%) followed by category B (15.31%), category C (13.24%) and category D (1.33%). No drugs were prescribed from category X. Similar pattern of category distribution was reported from similar studies conducted in other countries like India [24] Netherland [25], Finland [26], Bratislava and Nitra [27].

The average number of drugs per prescription in this study (3.30) was higher than the range of the standard set by WHO (1.6-1.8) but percentage of patients prescribed with injection was 5.18%, which is low as compared with the range of the standard set by WHO. Percentage of drugs prescribed from hospital drug list was 98.5% showing adequate drug dispensing from the hospital pharmacy.

The study shows the prevalence of some missing items among the studied prescriptions which can lead to some serious problems sometimes, so it is advised to keep an eye on it.

CONCLUSION

Iron, calcium and folic acid were the most frequently prescribed drugs. Overall drug use pattern is rational with few exceptions. Nearly all the drugs were prescribed from essential hospital drugs list. Majority of the drugs were prescribed as per FDA category A, the safest category during pregnancy. Hence we can conclude that poly pharmacy was not practiced as the average number of drugs per prescription was comparable with a standard set by WHO.

This type of study can help in evaluating the existing drug use pattern and in planning appropriate interventions to ensure rational drug therapy.

Conflict of Interest

The authors declare that they have no conflict of interest.

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