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Original Article

ASSESSMENT OF PRESCRIPTION PATTERN IN HIGH-RISK PREGNANCY AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: Pregnancy is a special physiological condition where drug treatment presents a special concern. The aim of the study is to evaluate the pattern of drug use and WHO prescribing indicators in high-risk pregnancies.

Methods: A prospective observational study was carried out for a period of six months. A self-designed data collection form was used to collect the data from the prescriptions. The collected data was entered and analyzed using Microsoft Excel.

Results: A total of 200 patients were included in this study. Preeclampsia (45, 22.5%) was the most frequently recorded complication, followed by eclampsia (43, 21.5%), anemia (34, 17%), and PIH (32, 16%). Antimicrobial agents (435, 32.5%) were the most frequently prescribed class of drug, followed by hematinics (194, 14.4%). A total of 1,338 drugs were prescribed in 200 patients. The average number of drugs per prescription was 6.69, the percentage of drugs prescribed by generic name was 88.04%, the percentage of drugs prescribed from EDL was 83.10%, the percentage of prescriptions with an antibiotic prescribed was 88%, and the percentage of prescriptions with an injection prescribed was 76%.

Conclusion: During pregnancy, as we see, every complication need treatment and different class of drugs in, which some drugs may cause serious side effect to both mother and fetus. The prescription pattern was suboptimal when compared to the WHO core prescribing indicators' suggested values. Studying drug prescribing patterns in high-risk pregnancies can help improve practices, leading to safer and more effective medication use and, ultimately better health outcomes for both mothers and fetuses.

Keywords: High-risk pregnancy, Prescribing indicators, Eclampsia, Oligohydramnios, LSCS

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INTRODUCTION

Pregnancy complicated by variables that may negatively impact the mother's and/or the fetus's outcome is referred to as high-risk. 70% to 80% of perinatal mortality and morbidity are caused by the 10–30% of pregnant women who are deemed high risk throughout the prenatal period [1, 2].

"The marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social, and economic consequences" is how the WHO described drug usage research in 1977. Drug usage research's main goal is to promote drug use that is logical among the populace, which will improve health outcomes. Because it is linked to physiological changes in the pharmacokinetic and pharmacodynamic properties of the medications and because it puts the life of the mother and fetus in danger, the pattern of drug use during pregnancy is particularly concerning [3, 4].

Pregnant women who use drugs run the danger of causing teratogenic effects to their unborn child. On the other hand, it is unsafe and impracticable to advice against using any drugs while pregnant. Clinicians should not let their patients' pregnancies stop them from receiving the proper care for their diseases. Medicines are essential for maintaining and regaining health. Thus, prescribing in pregnancy is a unique case of risk-benefit [5].

The FDA of the United States implemented a system in 1979 to rate the risk of pregnancy associated with pharmaceutical agents. This system assigned a pregnancy risk category to all pharmaceuticals approved after 1983. It suggests the level of caution that should be used with each medication and shows the effect of the agent on the fetus based on data from humans and animals [6].

It is impossible to avoid taking medication while pregnant because some pregnant women have long-term medical conditions that need to be treated, such as respiratory tract diseases, asthma, anemia, gastrointestinal irritations, hepatitis, jaundice, diabetes mellitus, hypertension, thyroid disorders, and urinary tract infections. A doctor's job is to weigh the pros and cons of medication therapy when a patient is pregnant. The use of medications during pregnancy has implications for the development of the fetus in addition to the health of the mother [7, 8].

More emphasis should be placed on female patients in the OBGYN department, as a small mistake can lead to congenital malformations of the fetus. Considering the essential role of prescribing practices in OBGYN practice, the current study was conducted to study the pattern of drug prescribing among high-risk pregnancies in the OBGYN Ward.

MATERIALS AND METHODS

Study design

This was a prospective observational study.

Study site

This study was conducted at a Tertiary care hospital, Chitradurga.

Study period

This study was conducted for a period of six months.

Study subject

Pregnant women who were admitted to the OBGYN department of Tertiary Care Hospital, Chitradurga.

Study criteria

The study was carried out by considering the following criteria

Inclusion criteria

- Patients of high-risk (complicated) pregnancy who are admitted to the OBGYN ward.

- Patient prescribed with at least one medication.
- Pregnant women who are willing to participate in the study.

Exclusion criteria

- Patients who provide incomplete information.
- Pregnant women who are not willing to cooperate.

Ethical approval

The study was approved by the "IEC" of SJM College of Pharmacy, Chitradurga.

Vide number: SJMCP/IEC/624/2023-24

Source of data

- Treatment chart.
- Medical reports of patients.
- WHO model list of essential medicines.

Study procedure

A six-month prospective observational study was conducted on pregnant women who were admitted to the OBGYN department of Tertiary Care Hospital, Chitradurga. The study was started after the approval from the IEC. First of all, details about the study were explained to the patients and those patients who are willing to sign the informed consent form were only included in the study. Patient data were collected in the self-designed data collection form. The details included name, age, medical and medication past history, diagnosis, and drug therapy data like drug name, dose, route of administration, and frequency. The data was evaluated for prescribing patterns. Confidentiality of collected data was maintained.

Statistical analysis

All the relevant data was entered and analysed by Microsoft Excel.

RESULTS

A total of 200 patients of pregnant women with high-risk conditions were included in this study. The mean age of pregnant women was 26±4.5. The following are study results in the view of complications, different classes of drugs, and prescribing indicators by the objectives of the study.

Distribution of pregnancy associated with complications

Preeclampsia (45, 22.5%) was the most frequently recorded complication, followed by eclampsia (43, 21.5%), anemia (34, 17%), PIH (32, 16%), PROM (31, 15.5%), and Prev. LSCS (30, 15%). The results are shown in table 1.

Table 1: Distribution of pregnancy associated with complications

Complications	Frequency	Percentage
Pre-eclampsia	45	22.5
Eclampsia	43	21.5
PROM*	31	15.5
Anemia	34	17
PIH*	32	16
Cardiac diseases	8	4
Hypothyroidism	12	6
Prev. LSCS*	30	15
Epilepsy	10	5
Oligohydramnios	10	5
GDM*	8	4
IUD*	5	2.5
Thrombocytopenia	6	3
HELLP syndrome*	2	1
APLA*	1	0.5
UTI*	4	2
Rh pregnancy	2	1
Polyhydramnios	3	1.5
Hyperthyroidism	4	2
Abruptio placenta	4	2
Placenta previa	3	1.5
Elderly primi	5	2.5
Twin pregnancy	2	1
Bronchial asthma	4	2
Preterm labor	5	2.5
Threatened preterm	3	1.5

Table 2: Distribution of different classes of drugs prescribed

Drug class	Frequency	Percentage
Antimicrobial agents	435	32.5
Antihypertensive	149	11.1
NSAIDS	152	11.3
Hematinics	194	14.4
Steroids	53	3.96
Diuretic	28	2.09
Thyroxine	11	0.82
Insulin	12	0.89
Antiepileptics	14	1.04
Metformin	3	0.22
Magnesium sulfate	75	5.6
Other	212	15.8

Distribution of different classes of drugs prescribed

In this study population, antimicrobial agents (435, 32.5%) were the most frequently prescribed class of drug, followed by hematinics (194, 14.4%) and metformin (3, 0.22%) were the least prescribed drug. The results are shown in table 2.

WHO prescribing indicators

A total of 1,338 drugs were prescribed in 200 patients. The average number of drugs per prescription was 6.69, the percentage of drugs prescribed by generic name was 88.04%, the percentage of drugs prescribed from EDL was 83.10%, the percentage of prescriptions with an antibiotic prescribed was 88%, and the percentage of prescriptions with an injection prescribed was 76%. The results are shown in table 3.

Table 3: WHO prescribing indicators

Indicators	Value
Average number of drugs per prescription	6.69
Percentage of drugs prescribed by generic name	88.04%
Percentage of drugs prescribed from EDL	83.10%
Percentage of prescriptions with an antibiotic prescribed	88%
Percentage of prescriptions with an injection prescribed	76%

DISCUSSION

Pregnancy is a special physiological condition where drug treatment presents a special concern. The rational use of drugs during pregnancy requires careful assessment as in addition to the mother, the health and life of the unborn child are also concerns. Also, some drugs can interfere with the functional development of the organ system and the central nervous system of the fetus [9, 10].

The study conducted by Vishwanath M *et al.,* shows that common complications to be found in pregnancy are preeclampsia and eclampsia and others commonly occur during the trimester, which is similar to our study. In comparison to Negasa M *et al.,* the most prescribed class of drug is antibiotic, shown common and corresponding to our research outcome. Overall, antibiotics are a common and important medication that is widely prescribed for bacterial infections. However, it is important to use them responsibly and only when necessary to prevent the development of antibiotic-resistant bacteria.

The average number of drugs per prescription was 6.69 which is more than the WHO recommended standard value. Similar results were reported in a previous study conducted by Mathuria A *et al.* With comorbid conditions associated with pregnancy, polypharmacy has become a necessity today. Moreover, most pregnant women take haematinics and vitamins such as Iron preparations, folic acid, ascorbic acid, and vitamin B complex tablets. The percentage of prescriptions with an antibiotic prescribed is around 88 %; this exceeds the reference value of<30% recommended by the WHO. This implies the fact that infectious conditions are more common, especially in the third trimester of the study pregnancy, which is similar to done by Tekulapally K *et al.* The percentage of drugs prescribed by generic name was 88.04%, which is less than the reference value recommended by the WHO. The percentage of prescriptions with an injection prescribed was 76%. Most of the drugs were administered by the intravenous route; drugs such as antimicrobials, antihypertensive, magnesium sulfate, and parenteral iron need to be administered by IV route, indicating the severity of the condition. The percentage of drugs prescribed from EDL was 83.10, which is less than the WHO recommended value. The value is more than the value (73.3%) arrived in the study conducted by Vishwanath M *et al.* The limitation of the study is as the study is conducted in a tertiary care hospital with better facilities and treatment options, the findings of this study cannot be generalized to other healthcare setups**.**

CONCLUSION

Prescribing medication during high-risk pregnancies requires careful consideration. While examination, we encountered complications like preeclampsia, eclampsia, anemia, PIH etc. During pregnancy, as we see, every complication need treatment and different class of drugs in which some drugs may cause serious side effect to both mother and fetus. In our observation, antimicrobial agents have been more prescribed followed by hematinic, steroids, and NSAIDs. Clinicians should weigh the risks and benefits, using the FDA's pregnancy risk categories as a guide. The prescription pattern was suboptimal when compared to the WHO core prescribing indicators' suggested values. Prescription practices that included polypharmacy, fewer prescriptions written under generic names, and a preference for the parenteral method of administration over the oral route were deemed inappropriate. Emphasizing the importance of tailored care in the OBGYN department is crucial to avoid potential risks to the fetus. Studying drug prescribing patterns in high-risk pregnancies can help improve practices, leading to safer and more effective medication use and, ultimately, better health outcomes for both mothers and fetuses.

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AUTHORS CONTRIBUTIONS

All authors have contributed equally.

CONFLICTS OF INTERESTS

Declared none

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