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Assessment of Drug Utilization Pattern In Obstetric and Gynaecology Department of A Tertiary Care Teaching Hospital

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ABSTRACT

Rational drug use in pregnancy requires the benefits and potential risk associated with the use of the drug. The adverse effect of drugs on the fetus varies temporarily with time. The study was conducted in the Navodaya Medical College Hospital & Research Center, Raichur for the period of six months. The case files of patients who were admitted in department of OBG were reviewed. The main objective of study was to assess the medicines prescribed to pregnant women during antenatal care, childbirth and lactation at a teaching care hospital. The total numbers of the patients enrolled in the study were 412 out of that 52.45% were in the range of 21-25 years, 71.31% patients were admitted third trimesters of pregnancy, 51.21% were multi-gravida. Common complaints of patients showed that anemia 23.8% and pregnancy induced hypertension (17.8%). Antibiotics (26.10%) were the most prescribed. In category A the maximum number of drugs prescribed in first trimester (41.83%).The study shows considerable medication use during pregnancy, child birth and lactation. Our study suggested that medicine use during pregnancy and lactation should be monitored regularly by analyzing prescription data.

Keywords: Childbirth, FDA, Lactation, Medication, Pregnancy.

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INTRODUCTION

Pregnancy is the carrying of one or more offspring, known as a fetus or embryo, inside the womb of a female. The pregnancy usually lasts for 40 weeks, beginning from the day of women's last menstrual period, and is divided into three trimesters, each lasting three months[1]. First trimester consists of week 1 to week 12, second trimester consists of week 13 to week 28 and third trimester consists of week 29 to week 40[2].

Drugs play an important role in improving human health and promoting well-being. However, to produce the desired effect, they have to be safe, efficacious and have to be used rationally. In pregnancy, drug treatment presents a special concern due to the threat of potential teratogenic effects of the drug and physiologic adjustments in the mother, in response to pregnancy. However, it has been documented that congenital abnormalities caused by human teratogenic drugs accounts for less than 1% of total congenital abnormalities. About 8% of pregnant women need permanent drug treatment due to various chronic diseases and pregnancy-induced complications. Moreover in India, due to easy availability of drugs coupled with inadequate health services, increased proportions of drugs are used as self-medication as compared to the prescribed drugs. Hence, these consumers always face the threat of adverse drug reactions and drug interactions between active hidden ingredients of both herbal and allopathic drugs. Pharmacoepidemiological studies can help in minimizing the inherent risk of drug use in pregnancy, by establishing a profile of drug consumption, by evaluating the existing health services and by investigating the interventional measures.[3]

Drugs in the pregnancy can affect the fetus in several ways. They can act directly on the fetus causing damage or abnormal development leading to birth defects or death. Drugs can also alter the function of the placenta usually by constricting blood vessels and reducing the blood supply of oxygen and nutrients to the fetus from mother and thus resulting in a baby that is underweight and underdeveloped. Moreover they can cause the muscles of the uterus to contract forcefully; indirectly injuring the fetus by reducing the blood supply or triggering pre-term labor and delivery. [1]

Breast-feeding is beneficial for the health of a mother and her child. However, many medicines can be transferred into breast milk causing the risk of breast-feeding to exceed its benefit to the infant, mother, or both. Although, a study had reported that the majority of prescription and non-prescription medicines are not found in breast milk after ingestion, there is limited evidence-

based data regarding the actual safety of many of these medicines, this therefore calls for caution on medicine use during lactation.[4]

For gynecological, maternal and child health the judiciary use of drugs, adequate knowledge, positive approach and awareness towards the drug use are mandatory prerequisites. It becomes essential to assess the drug utilization pattern in pregnancy to see what extent there may be scope for improvement of current prescribing pattern. In this regards, department of pharmacy practice had undertaken the study to assess the drug use pattern in OBG department of tertiary care teaching hospital.

MATERIALS AND METHOD

A Prospective – Observational Cohort study was carried out among 412 patients for a period of 6 months in Navodaya Medical College Hospital and Research Center, Raichur. The study was approved by Committee by issuing ethical clearance certificate. Pregnant woman who receiving antenatal care , delivered their babies, and followed up post-natal for the period of a 6 week in in-patient department of obstetrics and gynecology and pregnant woman who were seen over 6 months period were included in this study. Pregnant women who had incomplete or unavailable medical records for review and who were visiting outpatient antenatal clinic were excluded in this study. Presented team visited the study ward daily and reviewed the case files and entered the details in specially designed data entry form.

Patients, nurses and PG doctors were also interviewed for collecting information. Prescribed drugs were analyzed for FDA risk category, Dr. Hale's lactation risk category and WHO core drug use indicators.

Statistical Analysis

Statistical analysis was done by using descriptive statistics. Data were collected in predesigned Microsoft(R) Excel 2007. Continue variables were presented as mean values ± standard deviation (SD), and categorized variables were prescribed as percentages.

RESULTS AND DISCUSSION

Drugs play an important role in improving human health and promoting wellbeing. However to provide the desire effect they have to be safe ,efficacious and have to be used rationally.[5] Rational drug use in pregnancy and lactation requires balancing of benefits and potential risks associated with use of drugs.[3] The benefits of rational drug use during pregnancy related to maternal health as well as to foetal development[12]. Present study was prospective–observational

study done to assess the status of current treatment practices among pregnant and lactating women.

The demographic data concerning the age of study population shown that out of 412 pregnant women 52.04% were in the range of 21-25 years shown in **Table 1**. Demographic data obtained showed that a mean age was 23.87± 3.31 years. The average maternal age obtained in this study was similar to that obtained in a study done in Nigeria.[4]

Out of 412, 10.9%, 17.71% and 71.31% patients were admitted during first, second, third trimesters of pregnancy respectively depicted **Table 2.**

Table 1: Age Distribution of Patients (n = 412)

Age in years	No. of patients	Percentage (%)
<20	68	16.32
21-25	214	52.04
26-30	121	28.91
31-35	9	1.70
	S.M -23.87	
	S.D -3.31	

Table 2: Duration of Pregnancy (n = 412)

Pregnancy Trimester	No. of patients	Percentage (%)
First	45	10.9
Second	73	17.71
Third	294	71.35

In this study 48.78% were primigravida and 51.21% were multi- gravida shown in Figure 1. Reason for admission or common complaints of patients showed that anemia 23.8% and pregnancy induced hypertension (17.8%) was the commonest as shown in Figure 2. This pattern is in accordance with the study done by Patel KP et al[6] in which anemia & preeclampsia is common.

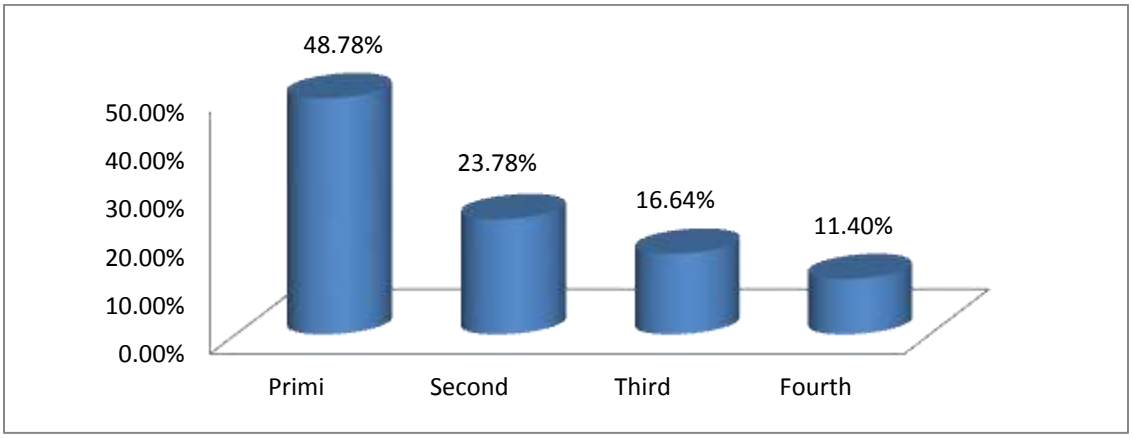

Figure 1: Gravidity wise distribution of the patient (n = 412)

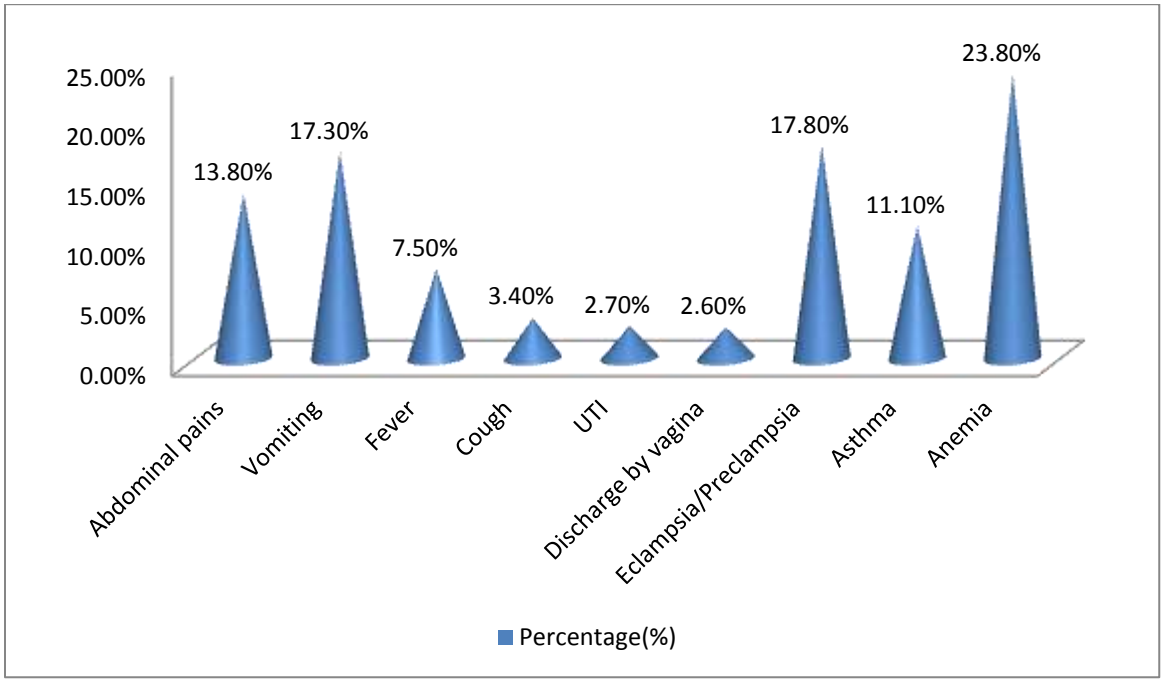

Figure 2: Common complaints of patients (n=412)

In category A the maximum number of drugs prescribed in first trimester 41.83%. From category B higher value of the drugs prescribed in the third trimester 69.33%. Majority of drugs from risk category D were also prescribed in third trimester. Category X drugs were not prescribed in first and second trimesters where as 1.86% where prescribed in third trimester shown in Table 3.

A comparison of core prescribing indicators obtained in current study with other studies are shown in Table 4.[6,7,8,9,10]

A comparison of FDA risk category values obtained in current study with other studies are shown in Table 5.[7,8,9,11]

The risk category of medicines prescribed during lactation is Figure 3 according to the Dr.hale's lactation risk category. The majority of the drugs belongs to L2 83.61% and followed by L1 15.38% and L3 1%. The majority of the medicines were prescribed during lactation is compatible with breast feeding however a number of ADR monitored. Although the proportion of patients who were prescribed ciprofloxacin where low, potential adverse effects of ciprofloxacin on breast feed infants were required the use of alternate medicine if necessary.

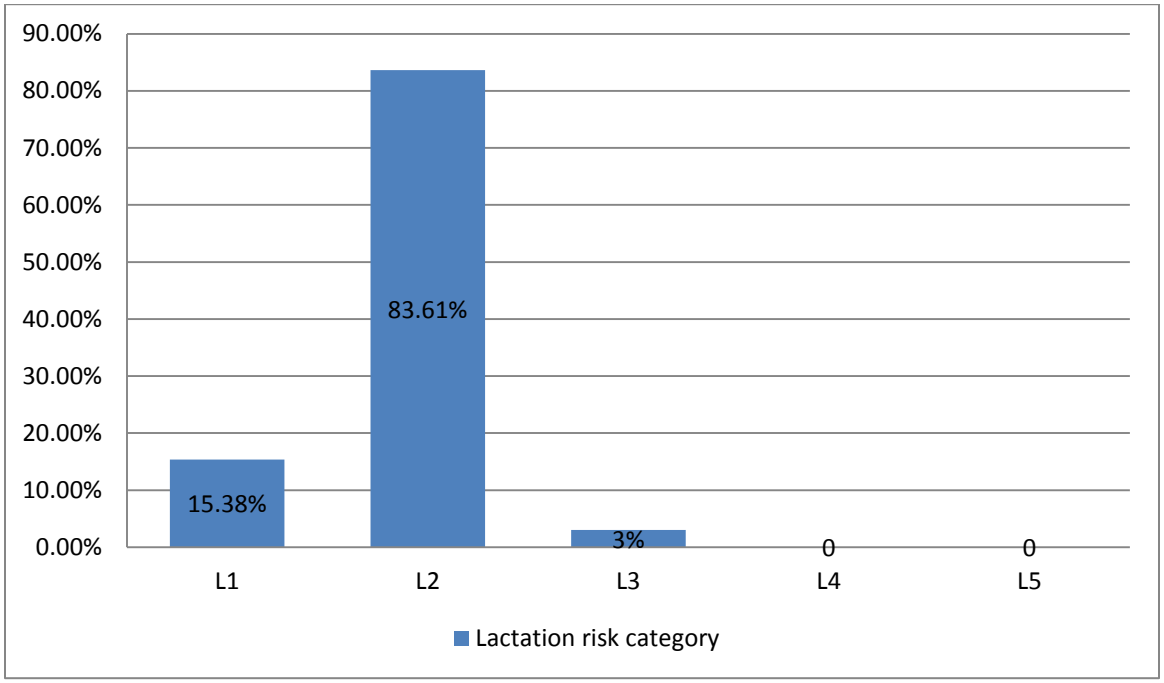

Figure 3: Prescribing pattern according to Dr.Hale's lactation risk category (N=299)

Table 3: Trimester Wise Comparison of Drug Categories Used During Pregnancy

Category of drugs	First trimester Total number of drugs : 220	Second trimester Total number of drugs: 419	Third trimester Total number of drugs : 1284
A	92(41.83%)	164(39.14%)	63(4.91%)
B	60(27.27%)	141(33.67%)	890(69.33%)
C	42(19.09%)	83(19.80%)	195(15.18%)
D	26(11.81%)	31(7.39%)	112(8.72%)
X	00(00%)	00(00%)	24(1.86%)

Table 4: Comparison of Core Drug Using Indicators Obtained In Current Study with other Studies

Core drug use indicators	WHO ideal value	Current study	Eze UI et al (2007)	Joshi H et al (2012)	Patel KP et al (2013)	Belay et al (2013)	Kumar NT et al (2013)
Average number of drugs prescribed	<2	4.66	3.00	3.01	6.58	1.72	4.4
% of drugs prescribed by generic name	100%	38	42.7	21.51	62.80	98.61	13
% of encounters with an antibiotic prescribed	<30%	26.10	5.8	11.17	13.20	24.0	-
% of encounters with an injection prescribed	<10%	23.4	8.8	2.17	25.29	11.25	-
% of drugs prescribed from essential drug list	100%	33	-	58.97	80.79	-	82

Table 5: Comparison of FDA Risk Category Values Obtained In Current Study with other Studies

Category	Current Study (n=412)	Agrarwal M et al (n=1012)	Eze UI et al (n=1200)	Joshi .H et al(n=734)	Beley M et al (n=381)
A	319(16.58%)	70.12%	48.1%	77.49%	15.3%
B	1091(56.73%)	15.31%	25.7%	12.64%	62.4%
C	320(16.64%)	13.24%	17.2%	9.15%	1.7%
D	169(8.78%)	1.33%	5.0%	0.72%	5.6%
X	24(1.24%)	None	None	None	None

CONCLUSION

The study shows considerable medication use during pregnancy, child birth and lactation. The moderate exposure during pregnancy to medicines with potential harm to the foetus and further exposure during lactation to breast feeding infants of great concern. It is suggested that medicine use during pregnancy and lactation should be monitored regularly by analyzing prescription data. It is recommended that there should be intensive assessment of pregnant women including the FDA risk category, the gestational period and the risk benefit balance of drug before its prescription. In addition, pharmacists should interact with other members of the healthcare team to develop, implement and monitor a therapeutic plan so as to achieve optimal care for monitor and her child.

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