THE PATTERN OF DRUG USES IN PREGNANT WOMEN ATTENDING THE ANTENATAL CLINIC OF THE OBSTETRICS AND GYNAECOLOGY DEPARTMENT AT A TERTIARY CARE HOSPITAL

VIDYABRAT RAKESH CHAURASIYA*

Associate Professor, Department of Pharmacology, Mata Gujri Memorial Medical College and L.S.K. Hospital, Kishanganj, Bihar, India.
Email: drvrchaurasiya@yahoo.com

ABSTRACT

Objective: The aim of the study was to study and evaluate the pattern of drug use in pregnant women attending the antenatal clinic of obstetrics and gynaecology department at a tertiary care hospital.

Methods: A prospective observational study was conducted at the Department of Gynecology and Obstetrics in M.G.M. Medical College and Hospital, Kishanganj, Bihar. The study included 368 pregnant women who consented and provided written informed consent for participation in this study during the study period from January 2020 to November 2021.

Results: Time for seeking the first antenatal check-up was majorly in 1st trimester (48.10%), followed by 35.60% in the 2nd and 16.30% in the 3rd trimester. A total of 3054 drugs were prescribed in all three trimesters from all organ systems. The majority belonged to blood and bone-forming agents, followed by antimicrobials and gastrointestinal drugs. Analyzing the prescribing trend grossly depicts that the drug prescribing showed a gradual increase from 18 to 2nd trimester, followed by a slow drop in 3rd trimester. During the entire study period, there were 177 prescriptions for 1st trimester, 306 prescriptions for 2nd trimester, and 366 prescriptions for 3rd trimester.

Conclusion: Our study site revealed a greater tendency to prescribe by generic name rather than by brand name in our hospital, which is a good sign as it reduces the economic burden on the patients. In other previous studies, it was less. Prescribing percentage of antibiotics in all trimesters was on the high rise, while the percentage of encounters with injection was within acceptable ranges. The majority of prescribing corroborated with national drug policy and was in concurrence with the national drug formulary and NLEM 2015, which reflects the essence of rational prescribing of pregnancy drugs in our set-up.

Keywords: Pregnant women, Antenatal check-up, Antimicrobials and gastrointestinal drugs, Mortality.

INTRODUCTION

Pregnancy is a normal physiological state which may be accompanied by some common conditions which may normally occur due to the physiological changes for which drug treatment may be necessary. Pregnancy is a unique physiological situation that requires specific consideration when it comes to medication treatment. Pregnant women and their unborn children deserve equal consideration when it comes to medication. Pregnant women should exercise extra caution when using drugs because of the risk to both the mother and the unborn child [1].

Antenatal care is created to help women have good pregnancies and deliver healthy babies without putting their own health at risk. This is accomplished by thorough clinical assessment and advice. Mother mortality in India ranges from 100/1,00000 in Kerala to 1200/1,00000 in the Northern States with an average of 400/1,000,000 throughout the country. Premature birth and low birth weight are the leading causes of perinatal mortality. The main causes for such unfavorable outcomes continue to be infections, hemorrhage, anemia, and preeclampsia which can be prevented by optimum antenatal care. As a result, perinatal mortality and morbidity can be reduced by treating these diseases early. Medications prescribed to pregnant women represent a risk to both the mother and her unborn child [2].

The drugs given to the pregnant mother for therapeutic purposes may even cause serious structural and functional deformities in the developing child since it is very difficult to determine the effects of the drugs on the fetus before marketing new drugs. Thus, due to obvious ethical reasons, most drugs are not recommended to be used during pregnancy before adequate clinical trial and acceptable risk-benefit ratio [3]. As there are numerous gaps in knowledge pertaining to the

detections of the consequence of the fetus post-delivery, prescription of drugs to the pregnant woman should be viewed as a public health concern and mandates proper vigilance.

Only a few studies have looked at how women use drugs when pregnant; therefore, this topic has not been well researched by professionals. To classify all pharmaceuticals approved after 1983 into one of five pregnancy risk categories, the FDA created a system for assessing pregnancy risk linked with pharmacological compounds in 1979 (A, B, C, D, and X). Each medicine is evaluated for its potential effect on the fetus using data from animals and humans, and precautionary measures are suggested based on the evidence [4].

With this background, the present study will be performed/undertaken to evaluate the drugs utilization pattern and practice during pregnancy in women attending the antenatal (ANC) clinic of M.G.M. Medical College and L.S.K. Hospital, a tertiary health-care center and teaching institution in Kishanganj, Bihar, India. This information can be used in strategic planning to ensure improved patient care services and to promote the sensible use of drugs in our institution.

METHODS

Study design
This was a prospective and observational study.

Study area/site
Observation and collection of prescriptions will be done at Department of Obstetrics and Gynecology, while analysis of collected data will be carried out at Department of Pharmacology MGM Medical College, Kishanganj, Bihar. This tertiary health care institution is established in

rural outskirt of Kishanganj, Bihar which provides super-specialty care to under-served population of this region.

Study duration
The duration of the study was 1 year.

Study population and sample
All consecutive pregnant women attending ante-natal clinic of MGM Medical College during the study duration will be enrolled for the study after obtaining their consent for participation.

Study tools
1 Basic Demographic Profile
2 Socioeconomic Analysis (Using Kuppuswamy Socioeconomic Scale 2016) [5]
3 Category of Drugs Used as per Anatomic therapeutic chemical (ATC) Classification of Drugs [6]
4 WHO Drug Prescribing Indicators [7]
5 USFDA Risk Categorization of Drugs used in Pregnancy [8].

Study plan
Prescriptions were studied for all patients ANC clinic (Outpatient Department) in any trimesters and then categorized trimester-wise to assess the prescribing frequency of each drugs in an individual trimester. Basic demographic details including age, gravid, and history of abortion if any will be noted. Socioeconomic analysis will be performed using Kuppuswamy Socioeconomic scale (modified version 2016). Time for seeking the first ANC and the total ANC sought will be noted for each patient. Drug usage including type, dosage, and duration of use will be noted. Pregnancy risk categorization of drugs will be considered for further analysis of data. The drugs will be classified by therapeutical classes according to the ATC Classification of Drugs and regrouped into different drug categories. To study changes in drug use during pregnancy, number of women using drugs during three different time periods will be noted at first trimester (from 0 to 12 weeks), second trimester (13–26 weeks), and third trimester (27 weeks-till delivery). The WHO Drug prescribing indicators will be used to assess the prescribing practices.

Statistical analysis
Data collected will be checked for completeness and then statistically analyzed. Descriptive data will be represented as mean or percentages. Where possible, demographic and categorical data will be analyzed with parametric or non-parametric tests whichever found applicable. The statistical analysis was performed using Statistical Package for the Social Sciences (SPSS), version 19.0. $p<0.05$ was considered as statistically significant.

RESULTS

The study included 368 pregnant women who consented and provided a written informed consent for participation in this study.

Age stratification
Among 368 pregnant women enrolled for the study, 69.02% of the females belonged to the age group of 20–25 years followed by 19.02% of the study population belonging to the 26–30 years group (Table 1).

Socioeconomic analysis
Socioeconomic profile of the study participants was analyzed using Modified Kuppuswamy's socio-economic status scale (Revised for

Table 1: Age stratification of pregnant females

Age Group	No (%)
<20 years	29 (7.88)
20–25 years	254 (69.02)
26–30 years	70 (19.02)
31–35 years	6 (1.63)
>35 years	5 (1.36)

2016). The scale has three basic domains namely, education, occupation, and family income (Table 2).

Based on the scores obtained in these respective domains, the total score designates the appropriate socioeconomic class of the individual.

Class	Total Score
Upper class	26–29
Upper middle class	16–25
Lower middle class	11–15
Upper lower class	5–10
Lower class	<5

Out of 368 study participants, the majority (60.60%) of the pregnant females belonged to the upper lower class followed by 22.28% females belonging to the lower middle class and 15.49% to the lower class (Table 3).

Place of stay
About 82.61% of the female hailed from rural and 17.39% residing in urban area (Table 4).

Gravida
About 50.81% (n=187) participants ere of primigravida (Table 5).

Abortion history
Of total study participants, 110 females (29.89%) reported positive history of abortion during history taking (Table 6).

Time for seeking the first antenatal check-up
Time for seeking the first antenatal check-up was majorly in 1st trimester (48.10%), followed by 35.60% in 2nd and 16.30 % in 3rd trimester (Table 7).

Total ANC visits
The majority of the study participants (49.18%) had more than five antenatal checkups, while 36.14% females had 3–5 antenatal checkups (Table 8).

Prescribing pattern of drugs
A total of 3054 drugs were prescribed in all three trimesters from all organ systems. The majority belonged to blood and bone forming agents, followed by antimicrobials and gastrointestinal drugs.

Analyzing the prescribing trend grossly depicts that the drug prescribing showed a gradual increase from 18 to 2nd trimester, followed by a slow drop in 3rd trimester. During the entire study period, there were 177 prescriptions for 1st trimester, 306 prescriptions for 2nd trimester, and 366 prescriptions for 3rd trimester (Table 9).

Trimester specific drug usage pattern (Table 10)
Trimester specific drug usage pattern were tabulated in Table 10.

Pregnancy risk categorization of drugs
The present study showed maximum prescribing (35.95%) of Category B drugs in all trimesters. Prescribing of Category A was 33.26%, followed by Category C at 16.73%. Category D and X drugs were also prescribed in our set up, though the frequency was low. Medications such as multivitamins and artesunate belonged to 12.11% prescribing which was uncategorized under risk stratification of pregnancy drugs (Table 11).

Prescription of drugs according to the dosage forms among patients in antenatal ward
About 58.57% drugs were prescribed in tablet form, while 34.48% were in capsule form. About 4.55% and 2.39% drugs prescribed were in syrups and parenteral form, respectively (Table 12).

Table 2: Modified Kuppuswamy's socioeconomic status scale (Revised for 2016)

Education	Score
Professional or Honors	7
Graduate or Postgraduate	6
Intermediate or High School Diploma	5
High School Certificate	4
Middle School Certificate	3
Primary School Certificate	2
Illiterate	1
Occupation	**Score**
Professional	10
Semi-Professional	6
Clerical, Shop Owner, and Farmer	5
Skilled Worker	4
Semi-Skilled Worker	3
Unskilled Worker	2
Unemployed	1
Family income per month in Rupees (August 2016 current price index for industrial workers)	**Score**
≥42,876	12
21,438–42,875	10
16,078–21,437	6
10,719–16,077	4
6431–10,718	3
2165–6430	2
≤2164	1

Table 3: Socioeconomic analysis of the participants

Class	No (%)
Upper class	1 (0.27)
Upper middle class	5 (1.36)
Lower middle class	82 (22.28)
Upper lower class	223 (60.60)
Lower class	57 (15.49)

Table 4: Place of stay of study participants

	No (%)
Urban	64 (17.39)
Rural	304 (82.61)

Table 5: Gravida status of participating females

Gravida	No (%)
Primigravida	
1	187 (50.81)
Multigravida	
2	109 (29.62)
3	58 (15.76)
4	12 (3.26)
5	2 (0.54)

WHO core drug prescribing indicators among patients in antenatal ward

Average number of drugs per prescription was found to be 3.90 in 1st trimester, 4.37 in 2nd trimester, and 2.80 in 3rd trimester. Generic prescribing was 75.98% in 1st trimester, 78.84% in 2nd trimester, and 76.29% in 3rd trimester. Prescribing percentage of antibiotics in all trimesters was on high rise such as 19.83% in 1st trimester, 16.96% in 2nd trimester, and 16.19% in 3rd trimester. Percentage of encounters with an injection prescribed was 11.86% in 1st trimester, 9.8% in 2nd trimester, and 6.01% in 3rd trimester (Table 13).

Table 6: Abortion history of participating females

Abortion history	No (%)
Yes	110 (29.89)
No	258 (70.11)

Table 7: Time for first antenatal checkup in participating females

Time for first antenatal checkup	No (%)
1st Trimester	177 (48.10)
2nd Trimester	131 (35.60)
3rd Trimester	60 (16.30)

Table 8: Total antenatal checkup of participating females

Total No. of ANC visits	No (%)
<3	54 (14.67)
3–5	133 (36.14)
>5	181 (49.18)

Percentage of drugs prescribed from essential drug list was probed. National List of Essential Medicine (NLEM 2015) was considered as reference. Prescribing percentage from essential drug list was followed in our hospital setup. Prescribing percentages were found to be 89% for 1st trimester, 90.43 % for 2nd trimester, and 91.51% for 3rd trimester which indicates that prescribing in our hospital is complying with the national drug policy.

DISCUSSION

Pregnancy complications are still a major health problem among women in developing countries. The maternal mortality ratio in developing countries is 240/100,000 births versus 16/100,000 in developed countries. There are large disparities between countries, with few countries having extremely high maternal mortality ratios of 1000 or more per 100,000 live births. There are also large disparities within countries, between people with high- and low-income and between people living in rural and urban areas. Main causes for such unfavorable outcomes continue to be postpartum hemorrhage, puerperal sepsis, preeclampsia and eclampsia, obstructed labor, unsafe abortion, and others which can be prevented by optimum antenatal care. Therefore, timely treatment of these conditions can reduce the prenatal morbidity and mortality.

Prescribing of drugs to pregnant women has been a concern for mothers, health-care providers, and the public since the thalidomide tragedy in the 1960s [9]. This is, in part, because quality information about the safety and effectiveness of medicine use during pregnancy is lacking for the majority of prescription drugs available on the market.

There have been numerous calls for more research into prescription drug use during pregnancy and associated health risks [10]. A number of studies have found that the use of prescription drugs during pregnancy is common and, though varying across jurisdictions, is increasing over time [11,12].

Analysis of age distribution revealed that among 368 pregnant women enrolled for the study, pregnancy was highest in the age group of 20–25 years and the mean age was 23.53±3.8 years. About 69.02% of the females belonged to the age group of 20–25 years followed by 19.02% of the study population belonging to the 26–30 years group. Socioeconomic status is defined as an individual's or group's position within a hierarchical social structure. Socioeconomic status depends on a combination of variables, including occupation, education, income,

Table 9: Prescribing pattern of drugs

Pattern of drugs	1st Trimester (n=177)	2nd Trimester (n=306)	3rd Trimester (n=366)	Total
Drugs acting on gastrointestinal system	137 (77.40)	181 (59.15)	137 (37.43)	455 (14.90)
Drugs acting on cardiovascular system	29 (16.38)	57 (18.63)	19 (5.19)	105 (3.43)
Drugs acting on endocrine system	26 (14.69)	44 (14.38)	44 (12.02)	114 (3.75)
Antimicrobials	149 (84.18)	248 (81.04)	174 (47.54)	571 (18.70)
Antimalarials	34 (19.21)	58 (18.95)	44 (12.02)	136 (4.45)
Drugs acting on nervous system	38 (21.47)	56 (18.30)	38 (10.38)	132 (4.32)
Drugs acting on respiratory system	88 (49.72)	153 (50)	63 (17.21)	304 (9.95)
Blood and bone forming agents	133 (75.14)	432 (141.17)	352 (92.17)	917 (30.02)
Others	57 (32.20)	109 (35.62)	154 (42.07)	320 (10.48)

Table 10: Trimester specific drug usage pattern

Specific drug usage pattern	1st Trim (n=177)	2nd Trim (908=u)	3rd Trim (n=366)	Total	Category
Drugs acting on Gastrointestinal System					
Ranitidine	21 (11.86)	35 (11.43)	19 (5.19)	75 (2.45)	B
Pantoprazole	13 (7.354)	34 (11.11)	49 (13.39)	96 (3.14)	B
Rabeprazole	19 (10.73)	32 (10.46)	39 (10.65)	90 (2.95)	B
Lactulose	13 (7.34)	10 (3.26)	5 (1.37)	28 (0.92)	B
Doxylamine Succinate	20 (11.30)	26 (8.50)	12 (3.28)	58 (1.90)	A
Ondansetron	24 (13.56)	20 (6.53)	8 (2.19)	52 (1.70)	B
Dicyclomine	27 (15.25)	24 (7.84)	5 (1.37)	56 (1.83)	B
Drugs acting on Cardiovascular System					
Methyldopa	11 (6.21)	29 (9.48)	10 (2.73)	50 (1.64)	B
Aspirin	9 (5.08)	25 (8.17)	5 (1.37)	39 (1.28)	C
Atenolol	3 (1.69)	0 (0)	0 (0)	3 (0.09)	D
Isoxsuprine	0 (0)	0 (0)	4 (0.13)	4 (0.13)	C
Nicardipine	6 (3.38)	3 (0.98)	0 (0)	9 (0.29)	C
Drugs acting on Endocrine System					
Insulin	8 (4.51)	24 (7.84)	18 (4.92)	50 (1.63)	C
Thyroxine	0 (0)	15 (4.90)	26 (7.10)	41 ((1.34)	A
Betamethasone	8 (4.51)	0 (0)	0 (0)	8 (0.26)	C
Mifepristone	2 (1.12)	0 (0)	0 (0)	2 (0.06)	X
Prednisone	8 (4.51)	5 (1.63)	0 (0)	13 (0.42)	C
Antimicrobials					
Metronidazole	12 (6.77)	20 (6.53)	14 (3.82)	46 (1.51)	B
Clotrimazole	12 (6.77)	21 (6.86)	8 (2.19)	41 (1.34)	B
Amoxicillin	13 (7.34)	30 (9.80)	27 (7.38)	70 (2.29)	B
Cefixime	12 (6.77)	23 (7.52)	20 (5.46)	55 (1.80)	B
Azithromycin	14 (7.91)	30 (9.80)	29 (7.92)	73 (2.39)	B
Erythromycin	9 (5.08)	7 (2.28)	0 (0)	16 (0.52)	B
Benzathine Penicillin	13 (7.34)	6 (1.96)	0 (0)	19 (0.62)	B
Clindamycin	13 (7.34)	26 (8.50)	22 (6.01)	62 (2)	B
Rifampicin	23 (12.99)	40 (13.07)	26 (7.10)	89 (2.91)	C
Isoniazid	28 (15.82)	45 (14.70)	28 (7.65)	101 (3.31)	C
Antimalarials					
Chloroquine	24 (13.56)	33 (10.78)	27 (7.38)	84 (2.75)	C
Artesunate	10 (5.64)	25 (8.17)	17 (4.64)	52 (1.70)	N
Drugs acting on Nervous System					
Paracetamol	18 (10.16)	35 (11.44)	27 (7.38)	80 (2.62)	B
Phenytoin sodium	9 (5.08)	14 (4.57)	8 (2.19)	31 (1.01)	D
Valproate sodium	11 (6.21)	7 (2.29)	3 (0.81)	21 (0.69)	D
Drugs acting on Respiratory System					
Ambroxol	12 (6.77)	24 ((7.84)	8 (2.19)	44 (1.44)	B
Levocetirizine	19 (10.73)	43 (14.05)	24 (6.55)	86 (2.82)	B
Dextromethorphan	9 (5.08)	23 (7.52)	11 (3)	43 (1.41)	C
Salbutamol	13 (7.34)	20 (6.53)	0 (0)	33 (1.08)	C
Phenylephrine	18 (10.17)	6 (1.96)	0 (0)	24 (0.78)	C
Formoterol	5 (2.82)	9 (2.94)	0 (0)	14 (0.45)	C
Budesonide	12 (6.77)	28 (9.15)	20 (5.46)	60 (1.96)	B
Blood and Bone Forming Agents					
Iron and Folic Acid	69 (38.98)	198 (64.70)	187 (51.09)	454 (14.86)	A
Calcium Carbonate	64 (36.16)	234 (76.47)	165 (45.08)	463 (15.16)	A
Others					
Multivitamins	55 (31.07)	109 (35.62)	154 (45.08)	318 (10.41)	N
Misoprostol	2 (1.12)	0 (0)	0 (0)	2 (0.06)	X
Total drugs prescribed	691	1338	1025	3054	

wealth, and place of residence. The present study employed modified kuppuswamy's socioeconomic scale for assessing the socioeconomic status of the enrolled participants. The scale has three basic domains, namely, education, occupation, and family income. Out of 368 study

Table 11: Pregnancy risk categorization of drugs

Category	1st Trimester (n=691)	2nd Trimester (n=1338)	3rd Trimester (n=1025)	Total (n=3054)
A	153 (22.14)	473 (35.35)	390 (38.05)	1016 (33.26)
B	287 (41.53)	477 (35.65)	334 (32.58)	1098 (35.95)
C	159 (23.01)	233 (17.41)	123 (12)	511 (16.73)
D	23 (3.33)	21 (1.56)	11 (1.07)	55 (1.80)
X	4 (0.58)	0 (0)	0 (0)	4 (0.13)
N	65 (9.41)	134 (10.01)	171 (16.68)	370 (12.11)

Table 12: Prescription of drugs according to the dosage forms

Formulation	No (%)
Tablets	1789 (58.57)
Injections	73 (2.39)
Capsules	1053 (34.48)
Syrups	139 (4.55)

participants, the majority of the females belonged to the upper lower class followed by those belonging to the lower middle class and lower class. About 82.61% of the females hailed from rural, while 17.39% resided in urban area. In our study, two participants suffered miscarriage by the end of 1st trimester.

The order of pregnancy revealed that the majority of the participants in this study were primigravida which is similar to studies reported by Adhikari *et al*. and Sharma *et al*. conducted in the Central and Northern [13] parts of India, respectively. The majority of antenatal mothers were primigravida (50.81%) (n=187) in this present study which is consistent with other study reports [14,15]. In our study, 110 females (29.89%) reported positive history of abortion during history taking.

Time for seeking the first antenatal check-up was majorly in 1st trimester (48.10%), followed by 35.60% in 2nd and 16.30% in 3rd trimester. The timing of the first prenatal visit showed that the most of the women attended clinics during 12–24 weeks which was similar to a study reported in China by Zhu *et al*. [16]. It was seen that maximum number of participants did not have an abortion history similar to the study by Zhu *et al*. The majority of the study participants (49.18%) had more than five antenatal checkups, while 36.14% females had 3–5 antenatal checkups.

A total of 3054 drugs were prescribed in all three trimesters from all organ systems. The majority (30.02%) belonged to blood and bone forming agents, followed by antimicrobials (18.70%) and gastrointestinal drugs (14.90%). During the entire study period, there were 177 prescriptions for 1st trimester, 306 prescriptions for 2nd trimester, and 366 prescriptions for 3rd trimester. Analyzing the prescribing trend grossly depicts that the drug prescribing showed a gradual increase from 1st to 2nd trimester, followed by a slow drop in 3rd trimester.

Using the USFDA risk classification, the percentage of women receiving drugs from different classes were documented. The majority of the drugs used by our study participants were from Category B which shows no risk to the fetus in the animal studies. Category B drugs included antimicrobials such as metronidazole, clotrimazole, amoxicillin, cefixime, azithromycin, erythromycin, benzathine penicillin, and clindamycin. Other drugs belonging to this category were ambroxol, levocetirizine, budesonide, paracetamol, ondansetron, dicyclomine, methyldopa, ranitidine, pantoprazole, rabeprazole, and lactulose. This was followed by Category A drugs which included iron and folic acid supplements, calcium supplements, thyroxine, and antiemetics such as doxylamine succinate.

Around 16.73% of the total prescribed drugs belonged to Category C, which included Dextromethorphan, Salbutamol, Phenylephrine,

Formoterol, Rifampicin, Isoniazid, Chloroquine, Prednisone, Betamethasone, Insulin, Aspirin, Isoxsuprine, Nicardipine. About 1.80% of total drugs belonged to Category D which included anticonvulsants such as Phenytoin sodium, Valproate sodium along with thyroxine. Category X drugs such as Mifepristone and misoprostol constitute 0.13% of total prescriptions. Reports on usage of potentially harmful drugs belonging to Categories D and X during pregnancy have also been reported from rural areas in the Central India. Hence, minimal and/or cessation of usage of drugs belonging to Category D and Category X, respectively, should be done.

The majority of patients used oral dosage form across all trimesters, the simplest route for any patient to take medication. Injections were also used in all trimesters of gestations. About 58.57% drugs were prescribed in tablet form, while 34.48% were in capsule form. About 4.55% and 2.39% drugs prescribed were in syrups and parenteral form, respectively.

In the present study, average number of drugs per prescription was quite high compared to the World Health Organization (WHO) standard values of ≤2 drugs per prescription. Our study witnessed that monotherapy was rarely practiced among patients. Average number of drugs per prescription was found to be 3.90 in 1st trimester, 4.37 in 2nd trimester, and 2.80 in 3rd trimester. The study calls for appropriate risk benefit analysis prior prescribing of drugs which can help to achieve safer outcomes in pregnant females. In our study, generic prescribing was 75.98% in 1st trimester, 78.84% in 2nd trimester, and 76.29% in 3rd trimester, which reveals a greater tendency to prescribe by generic name rather than by brand name in our hospital which is a good sign as it reduces the economic burden on the patients. In other previous studies, it was less.

However, prescribing percentage of antibiotics in all trimesters was on high rise such as 19.83% in 1st trimester, 16.96% in 2nd trimester, and 16.19% in 3rd trimester. Unnecessary usage of antimicrobials will result in both excess cost to the patient and also development of widespread resistance and unprecedented risk in the patient.

Percentage of encounters with an injection prescribed was 11.86% in 1st trimester, 9.8% in 2nd trimester, and 6.01% in 3rd trimester. These figures were within acceptable ranges, as compared to standard values and also in comparison with other studies where percentages are higher.

Percentage of drugs prescribed from essential drug list was probed. National List of Essential Medicine (NLEM 2015) was considered as reference. Prescribing percentage from essential drug list was followed in our hospital setup. Prescribing percentages were found to be 89% for 1st trimester, 90.43% for 2nd trimester, and 91.51% for 3rd trimester which indicates that prescribing in our hospital is complying with the national drug policy.

However, conferring to the national drug policy also mandates revision of drug policy according to the needs. Hence, inclusion of rest drugs which are frequently used in pregnancy conditions, in the national drug policy is a mandate for countries like India, where access to medications in rural is facilitated by essential drugs availability.

Table 13: Assessment as per the WHO core drug prescribing indicators

Assessment as per the WHO core drug	1st trimester	2nd trimester	3rd trimester
Average number of drugs per prescription	3.90	4.37	2.80
Percentage of drugs prescribed by generic name	75.98	78.84	76.29
Percentage of encounters with antibiotic prescribed	19.83	16.96	16.19
Percentage of encounters with an injection prescribed	11.86	9.80	6.01
Percentage of drugs prescribed from essential drug list	89	90.43	91.51

CONCLUSION

Drug prescribing in pregnant females has been a concern for mothers, health-care providers, and the public since the 1960's thalidomide saga as quality information about the safety and effectiveness of medicine use during pregnancy is lacking for the majority of prescription drugs available on the market. Our study site revealed a greater tendency to prescribe by generic name rather than by brand name in our hospital which is a good sign as it reduces the economic burden on the patients. In other previous studies, it was less. Prescribing percentage of antibiotics in all trimesters was on high rise, while percentage of encounters with an injection was within acceptable ranges. The majority of prescribing corroborated with national drug policy and was in concurrence with national drug formulary and NLEM 2015 which reflects the essence of rational prescribing of pregnancy drugs in our set-up.

Using the USFDA risk classification, the percentage of women receiving drugs from different classes were documented. Although the present study showed that Category D and Category X drugs have been less prescribed to the antenatal women, still use of these drugs should be minimized or stopped. Average number of drugs prescribed per prescription was higher than the WHO reference value which calls for caution. Knowledge of the potential danger of medication uses during pregnancy, and recognition of the fact that important clinician understanding is still lacking and should warrant conservative use of medication. During pregnancy, the indication for a drug treatment needs the utmost caution. Further improvement in adherence to the prescribing of drugs as per their generic name should be practiced. Such rational practice will ultimately help in further improvement of the health status of the mother and her offspring.

CONFLICTS OF INTERESTS

Nil.

AUTHORS FUNDING

Nil.

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