



Study of category of drugs used in pregnancy in tertiary care hospital - a prospective observational study

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ABSTRACT

Pregnancy is special physiological condition where drug treatment presents a special concern. Prescribing patterns of the drug in the pregnant women are the serious events which can have harmful effects to mother as well as fetus if administered. To study and evaluate the prescribing pattern of drug used in pregnancy in OBG department and to find out the percentage of risk category of drugs used in pregnancy and categories of the drugs according to the USFDA drug risk category. A prospective observational study was conducted on a total of 111 pregnancy patients who were admitted in Basaveshwara Medical College Hospital, Chitradurga. This study was carried out for a period of 6 months. Patient profile was used as source of data. A total of 111 patients were enrolled in the study. Out of this the more number of patients were in the age group of 23-26(39.64%). About 10 (9%) were found having the co morbidity of hypothyroidism and 38(34.23%) patients have co morbidity condition. US FDA drug pregnancy category were seen in mostly in the pregnant women of 24 (45.28%) of risk category C and followed by pregnant women of 15(28.30%) of B category. 58.56% of antibiotic are prescribed to the pregnant women for the study. Drugs prescribing are a risk factor for harmful effect on foetus. The research concluded that drug risk category were common in the prescription. Mainly used categories are A, B, and C for this study.

INTRODUCTION

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 unborn child also concern^[1]. Maternal drug use during pregnancy may cause a teratogenic risk for the embryo. However, the recommendation to avoid all drugs during early pregnancy is unrealistic and may be dangerous^[2]. About 8% of pregnant women need permanent drug treatment due to their chronic disease such as hypertension, bronchial asthma, thyroid disorder, gastro enteritis and depression^[3]. The use of drug during pregnancy still represent a challenge for medicine, since the majority of the drugs cross the placental barrier with a potential to cause several congenital problems to the fetus and most of them have not been clinically tested in pregnant patient. So to evaluate the pattern of medicine consumption in high risk pregnancy and

determines to this consumption pattern^[4].

According to FDA guidelines, the pregnancy drugs are classified as A, B, C, D and X to indicate the potential of a drug to cause birth defects if used during pregnancy. The category A drugs like levothyroxine, folic acid, calcium tablets, TT injection etc. are more safe drugs compared to the other category drugs. Drugs like cefotaxime, metronidazole, ceftriaxone, acetaminophen etc. are B category drugs and betamethasone, nifedipine, labetalol, furosemide etc. are C category drugs. Both B and C category drugs are safe compared to category D and X. D category drugs are prednisolone, warfarin, aspirin, telmisartan etc. These drugs can cause human fetal risk based on its adverse reaction. Atorvastatin, etc. belong to X category and can cause fetal abnormality^[5].

This study would analyze the patients medical records to assess their prescription pattern and to determine the categories of drugs used in gynecological department in tertiary care

hospital and further optimize the risk category of drugs.

METHODOLOGY

This is a hospital based prospective observational study conducted in the Obstetrics and gynecology department of Basaveshwara Medical College Hospital and Research centre, Chitradurga for a period of 6 months. A total of 111 subjects from the Obstetrics and gynecology department who satisfied the study criteria and assent to participate in this study were include in the study. The complete project was done after obtaining the permission granted by the ethical committee of Basaveshwara Medical College Hospital &Research Center, Chitradurga, Vide number: SJMCP/IEC/PHARMD/03/2019-2020.

The criteria s that was included in the study contained all pregnant women who attended gynecology department, patients who were prescribed with at least one medication and also pregnant women who were willing to participate in the study.

The criteria s that was excluded were patients who provided with incomplete information, pregnant women who were not willing to co-operate and patients with gestational diabetes.

All the relevant data was entered in Microsoft Excel and was analysed by SPSS software (version 27) .Categorical data was analysed by frequency distribution method and quantitative data was analysed by central tendency distribution and Descriptive

(Mean)method.

RESULT

Out of 111 patients included,the age group among them were classified as: 19-22 (20.72%), 23-26 (39%), 27-30 (23.42%), 31-34 (8.11%) and 35-38(8.11%). It is graphically depicted in Fig 1.

Among 111 patients enrolled in the study, 38(34.23%) patients were having at least one co-morbid condition ,while 73(65.77%) patients were admitted on the basis of fresh complaints. It is illustrated in Fig 2.

In the study population, 38(34.23%) were co-morbid condition and 73(65.77%) were non co-morbidity condition. It is graphically delineated in Fig 3.

Drugs prescribed to pregnant women classified according to US FDA drugs pregnancy category were seen mostly in the pregnant women of 21(42%) of risk category C, and followed by pregnant women of 15(30%) of B category, pregnant women of 7(14%) of A category, pregnant women of 6(12%) and pregnant women of 1(2%) of X category. It is portrayed in Fig 4.

Commonly prescribed drugs in the study were T.T injection (67.57%) followed by Iron tablet (64.86%), metronidazole (38.74%), betamethasone (33.33%), and pantoprazole (32.43%). It is outlined in Fig 5.

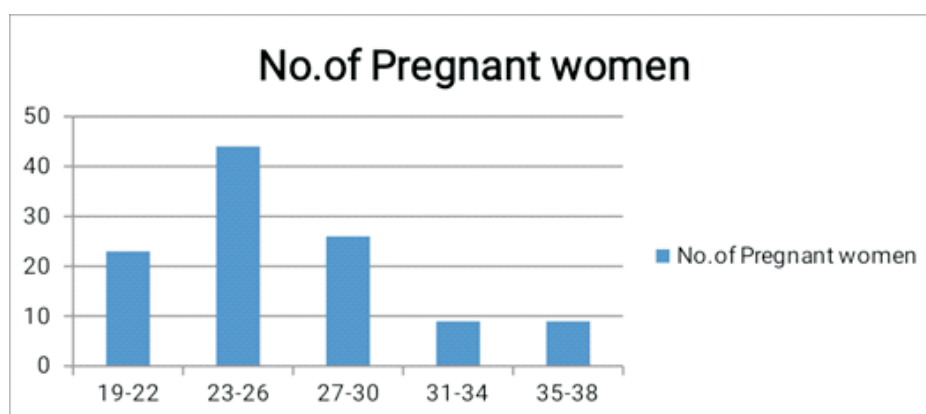


Fig 1 : Distribution according to age.

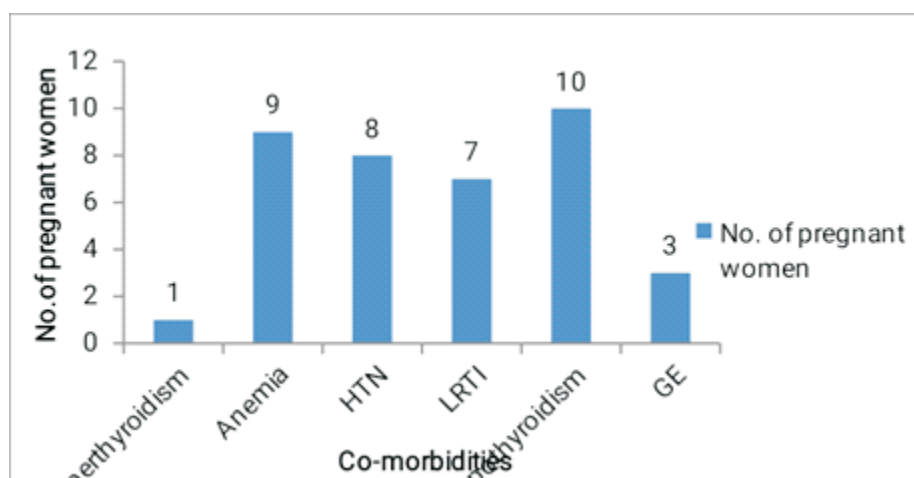


Fig 2 : Co-Morbidity in Patients

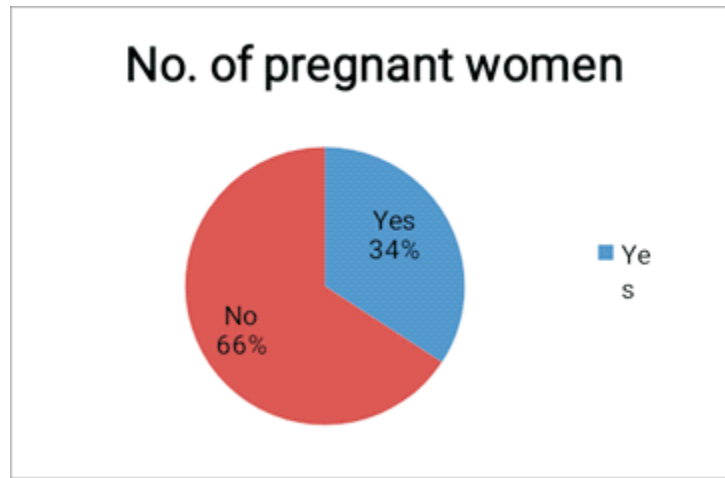


Fig 3 : Co-Morbidity Condition

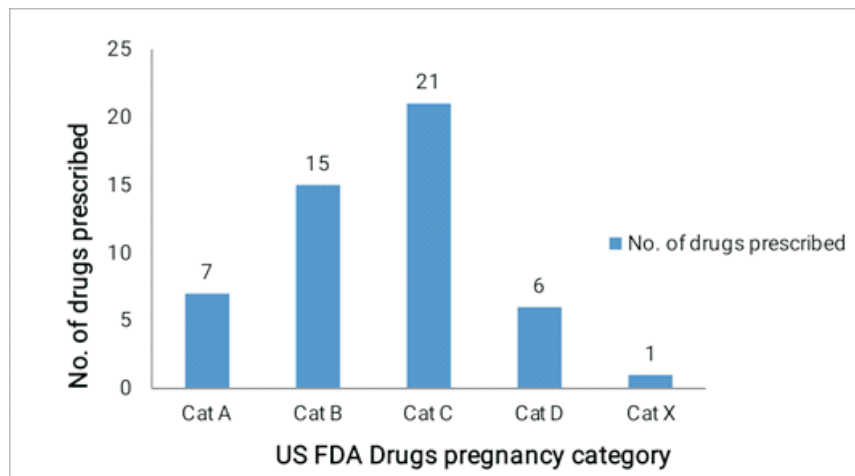


Fig 4 : Drugs Prescribed According to US FDA Category

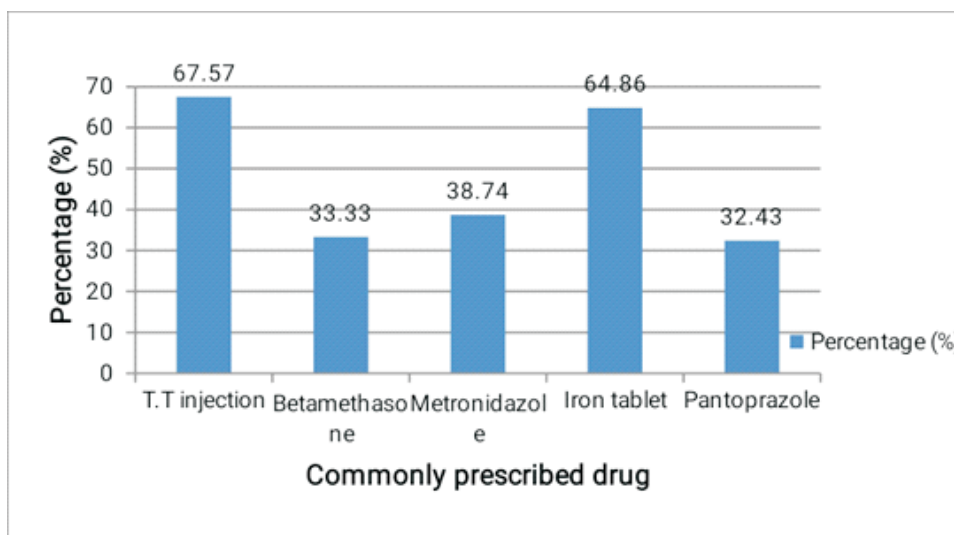


Fig 5 : Commonly Prescribed Drugs

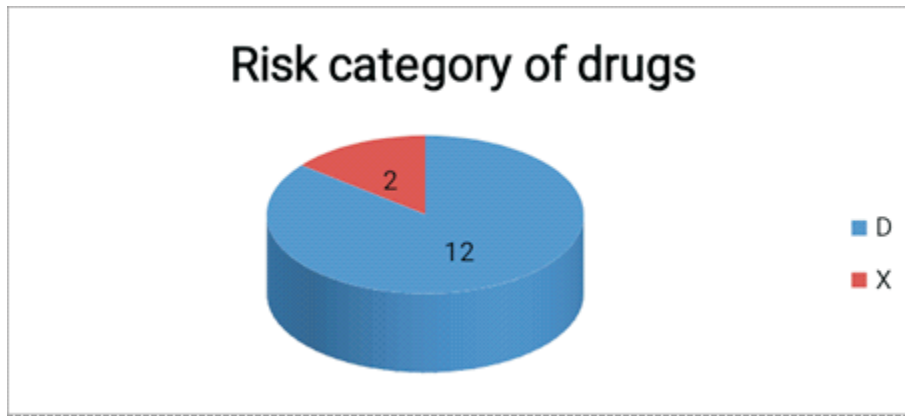


Fig 6 : Percentage of Risk Category of Drugs

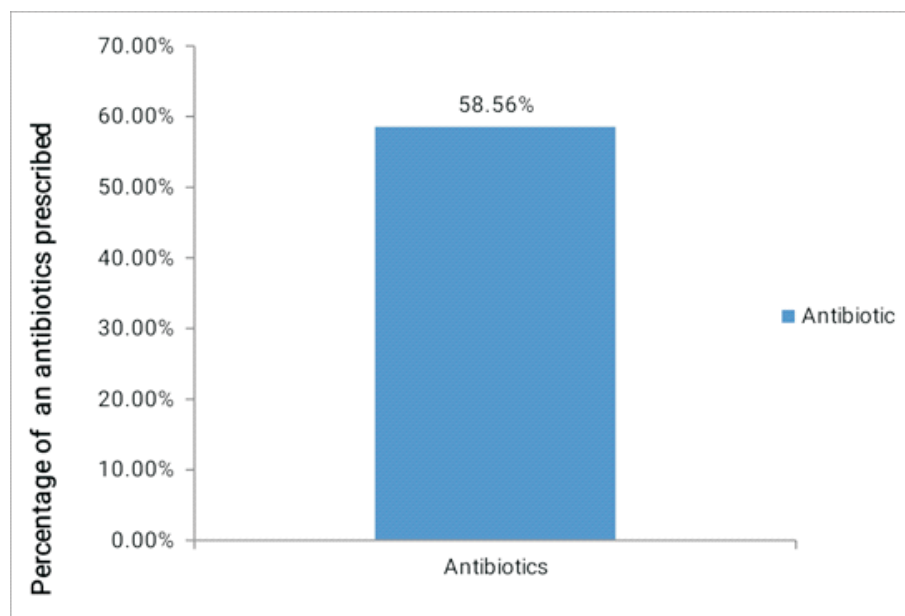


Fig 7 : Percentage of an Antibiotic Prescribed in the Study

Out of 111 pregnancy patients included in the study, percentage of risk category drugs in the study was seen in D category with 11.32% and X category with 1.89%. The result is diagrammatically represented in Fig 6.

Amidst 111 pregnancy patients included in this study, 58.56% of antibiotics were prescribed for the patient. The graphical representation is shown in Fig 7.

DISCUSSION

Pregnancy is a unique period in a women's life. Many changes are happening to her body that may affect the pharmacology of medications. During pregnancy, a woman's gastric PH is increased and gastric motility is reduced which may interfere with the rate and extent of medication absorption. The changes, the pharmacology of most medications is not altered enough to require dosing changes^[6]. In our study population, 111 patients of which 38(34.23%) pregnant women were found to have co-morbidities like Hypothyroidism 10 (9%), anemia 9(8.11%), hypertension 8 (7.21%), LRTI 7 (6.31%), GE 3(2.70%) and hyperthyroidism 1(.90). Rahuman F et al, conducted a prospective

cross-sectional study on Prescription Pattern Analysis during pregnancy in a Tertiary care teaching hospital^[7] and a similar result was observed in co-morbidity condition and also in Devkota et al., shows the same results^[8]. Commonly prescribed drug were seen out okasone number of pregnant women 37(33.33%) and pantoprazole number of pregnant women 36(32.43%). A similar study was conducted by Dileep KR et al, in which the anti-anemic drug include iron tables and minerals (79.4%) were the most frequently prescribed drug followed by analgesic (6.2%) and anti bacterial (2.2%)^[9]. In this study, US FDA drugs in pregnancy were seen in 111 patients. In which the most US FDA drugs category was C category number of drugs prescribed 21 (42%), followed by B category number of drugs prescribed 15 (30%). The study conducted by Pradeep B et al, was similar which C category was more 39.845% followed by B category drugs 31.82%, A category drugs (26.62%), D category (0.82%) and X category drugs(0.45%)^[10]. Among the total of 111 patients, 58.56% Of antibiotics prescribed to the patient. Stokholm J et al, conducted a prospective and cross-sectional study on Prevalence and Predictors of Antibiotic Administration

during Pregnancy and Birth. This study was carried out 706 pregnant women. The prevalence of antibiotics use was 37% during pregnancy and intrapartum.^[11] However, there were some limitations such as low sample size due to declined study duration, difficulty during interaction with patients due to language, inadequate information from patients etc, which occurred while conducting the study.

At the end of study, some future directions were discovered which could be useful for the betterment of the study such as, accurate results can be obtained from large population, study should be conducted for longer duration and teratogenicity can be avoided by aiming the study on appropriate pregnancy drugs.

CONCLUSION

According to the analyzed results, it is concluded that, the majority of the patients belong to an age group of 23-26 years. Comorbidity of hypothyroidism condition in patients were higher in number than in anemia. However, category C drugs were prescribed more frequently followed by B drugs in the Obstetrics and gynecology department. Percentage of risk category drugs was seen in D and X category. Antibiotics were also prescribed for pregnant women's. This study would promote appropriate use of drugs and reduce teratogenicity. Moreover, to improve prescribing standards a good prescription pattern is necessary.

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