

RESEARCH ARTICLE

A Retrospective Study on prescribing pattern of drugs among pregnant inpatients in Tertiary Care Hospital

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ABSTRACT:

Aim and Objective: The aim of the present study was to evaluate the prescribing pattern of drugs among pregnant women in antenatal ward of Employee's State Insurance Corporation (ESIC) hospital, Ayanavaram, Chennai. **Methods and Materials:** A retrospective study was conducted in 100 pregnant women for a period of 6-months. Each prescription was analyzed for demographic variables, various categories of drugs prescribed and individual drugs prescribed in that category. **Results:** In the present study, vitamin and mineral supplements (67%) were the most commonly prescribed category followed by Intravenous fluids (12%) and anti-emetics (7%). Among vitamin and mineral supplements, folic acid (31%) was the most commonly prescribed drugs. Ringer lactate (58%) was the most commonly prescribed IVF. Ondansetron (57%) was the most commonly prescribed anti-emetic. Most commonly prescribed anti-microbial agents were Metronidazole and Mebendazole (22% each). According to teratogenic risk, Category-B (45%) was highest. The percentage of injections prescribed was 22%. **Conclusion:** The present study showed that vitamin and mineral supplements were the most commonly prescribed drugs, anti-biotics were less used. Prescription by generic name was high and most of the drugs prescribed were from the National List of Essential Medicines (NLEM) which represents rational prescription. Utilization of category B drugs must be decreased and avoidance of category D drugs is recommended.

KEYWORDS: Prescribing Pattern, pregnant inpatients, generic name, rational drug use.

INTRODUCTION:

The principle aim of care throughout the maternity is a healthy pregnancy with a physically safe and psychologically fulfilling result for mother and infant^[1, 2]. To attain this goal, there should be uninterrupted monitoring and management. A great concern is needed mainly during the intake of drugs by pregnant women^[3]. Any agents that increase the occurrence of a congenital malformation is said to be a teratogen.

Drugs are also one among the teratogen and numerous congenital abnormalities had happened in the past due to teratogenicity. Of them, thalidomide disaster is one of the uppermost incident where new borns experienced thalidomide syndrome. This is the earliest known drug teratogen^[4]. Although, the Food and Drug Administration (FDA) has approved some guidelines with regards to the safe usage of drugs during the pregnancy^[5]. It categorizes the drugs into A, B, C, D and categories where category-A drugs are the risk-free, Category-B are moderately safer, Category-C safety is unrevealed, Category-D are contraindicated and Category-X are unsafe to pregnant women^[6].

health of pregnant woman and the fetus. Prior to any drug administering or any dietary supplement, a pregnant mother should confer her doctor who will advise to take necessary vitamin and minerals, medications and food supplements during pregnancy^[9,10]. Particulars on the drug used in pregnancy are short and quite informal^[11]. In India most of the pregnancies are unplanned and possibility are pregnant women may be considering drugs prior they know they are pregnant and also they may possess little knowledge on the drugs consumed^[12]. Consistently, there is a need to instruct and counsel the child bearing women concerning the favourable and unfavourable circumstances of drug use during pregnancies^[13].

Numerous studies organized in developed countries where prescribing drug practice is mostly used and have recognize the need for interventional procedures for the purpose of rational prescription throughout the prenatal period^[14,15]. To produce the desired effect, the drugs have to be safe, and efficacious and rational drug use must be ensured^[16].

Consequently, the present study was conducted to evaluate the prescribing pattern of drugs among pregnant women.

METHODOLOGY:

Study site:

This study was carried out in the Obstetrics and gynaecology department in a 300 bedded ESI government Hospital, Ayanavaram, Chennai.

Study population:

The study population consist of 100 patients satisfying inclusion criteria.

Inclusion criteria:

patients were eligible if they were

- Pregnant women admitted in the Obstetrics and gynaecology ward.
- Pregnancies with medical complications like anaemia, hypertension, diabetes and other co-morbid diseases/disorders.
- Willing to participate.

Exclusion criteria:

patients were ineligible if they were

- Not willing to participate.
- Patients undergoing chemotherapy/radiotherapy.

Study period:

The study was carried out from September 2017 to February 2018 (6months). The study was approved by the institutional review board.

Study design:

It was a Retrospective study. A relevant data that contains the demographic details of the patient along with treatment chart were recorded on a customized data collection sheet.

Parameters for evaluation:

The parameters included were Age and trimester wise distribution, FDA drug risk-category wise, co-morbidities, according to dosage forms, prescription of vitamin and mineral supplements, prescription of combination of drugs used, prescription anti-microbial drugs, prescription of IV-fluids, prescription of anti-emetics and category wise drug prescription among pregnant inpatients.

RESULTS:

The study attended to evaluate the prescribing pattern of drugs among pregnant women in tertiary care hospital.

1. Age wise distribution:

Among 100 patients, 44% of population belongs to the age group of 18-25 years, 32% of population belongs to the age group of 26-30, 16% of population belongs to 31-35 years of age and 8% of population belongs to 36-40 years of age. The age distribution of pregnant women patients included for this study is represented in Fig.1..

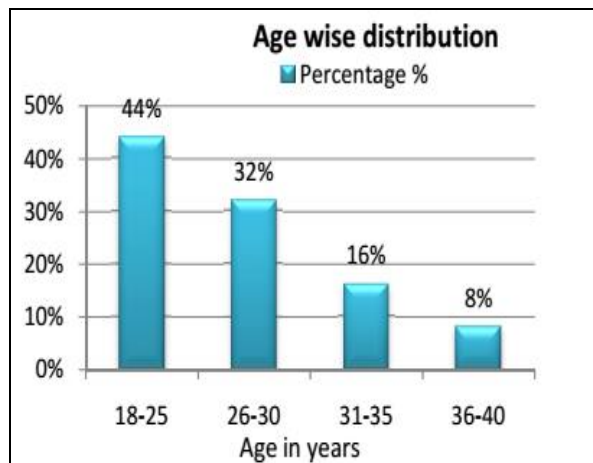


Fig.1 Age distribution of pregnant women patients included for the study of prescription pattern.

2. Trimester wise distribution:

Among 100 patients, 17% of population belongs to first trimester, 26% of population belongs to second trimester and 57% of population belongs to third trimester. The percentage distribution of pregnant patients based on their trimester stage is given in the Fig.2.

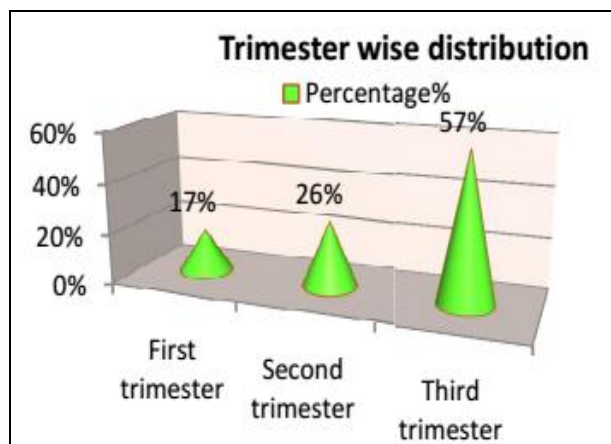


Fig.2. Distribution of pregnant patients based on their trimester stage.

3. Co-morbidities wise distribution:

Among 100 patients, 7% of population has thyroid, 8% of population has asthma, 8% of population has uterine fibroid, 9% of population has hypertension, 11% of population has diabetes mellitus and 57% of population were with fresh complaints. The prevalence of various co-morbidities in pregnant women included in this study are shown in the Fig.3.

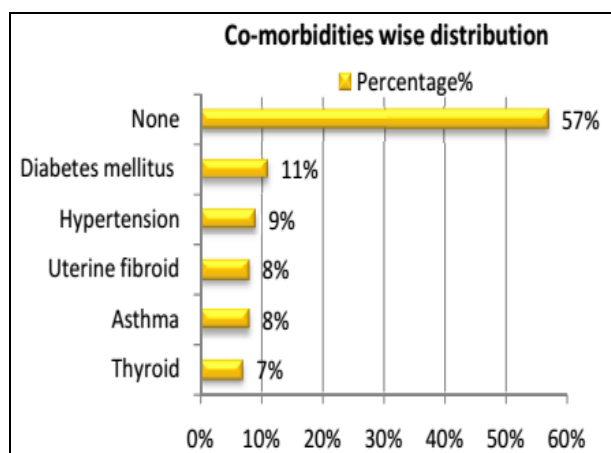


Fig.3. Prevalence of various co-morbidities in pregnant women.

4. Distribution of prescription according to FDA pregnancy risk groups:

In this study, among 100 patients 38% of category-A drugs were prescribed, 45% of Category-B drugs were prescribed, 16% of Category-C drugs were prescribed, 1% of Category-D drugs were prescribed and 0% of Category-X drugs were prescribed.

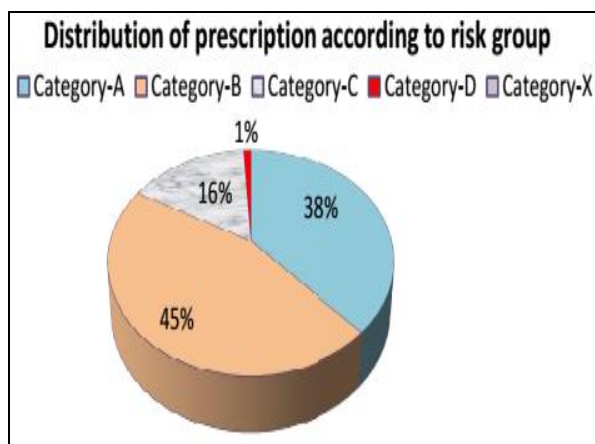


Fig.4. Prescription of various risk categories of drugs (A, B, C & D) to pregnant patients.

5. Prescription of drugs according to dosage forms:

In this study, 44% of tablets were prescribed, 22% of injections were prescribed, 19% of capsules were prescribed, 12% of infusions were prescribed, 2% of powders were prescribed and 2% of syrups were prescribed.

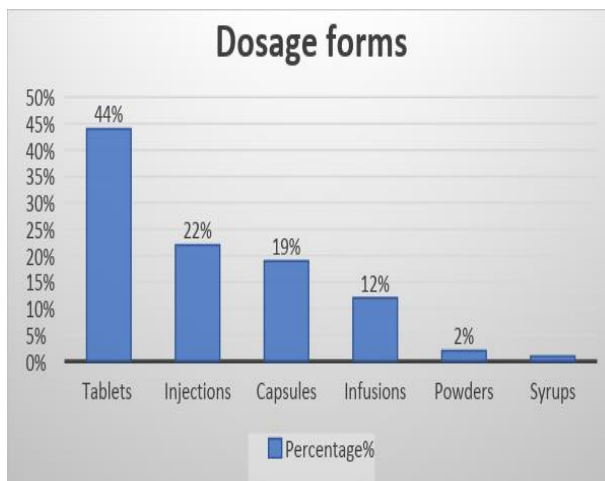


Fig.5. Prescription of drugs according to dosage forms.

6. Based on combination of drugs prescribed:

Among 100 patients, 26% of iron+calcium was prescribed, 22.22% of ferrous fumarate + folic acid + vitamin B12 was prescribed, 37% of iron + folic acid + vitamin B + vitamin C was prescribed, 5.55% Of calcium carbonate +vitamin D3 + magnesium + zinc was prescribed and 9.25% of calcium carbonate + vitamin D3 was prescribed. The details of combination of drugs prescribed for the study group is represented in the Fig.6.

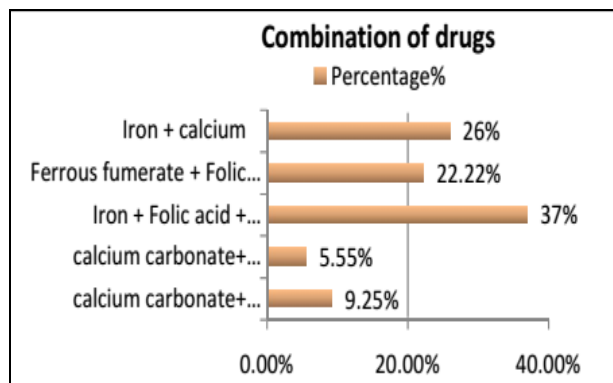


Fig. 6. Details of combination of drugs prescribed for the study group.

7. Based on Anti-microbial agents prescribed:

Among 100 patients, 22% of Metronidazole and Mebendazole each were prescribed, 11% of Cefixime and Doxycycline each were prescribed. Various anti-microbial agents prescribed for treatment of infections occurring in the pregnant women shown in the Fig.7.

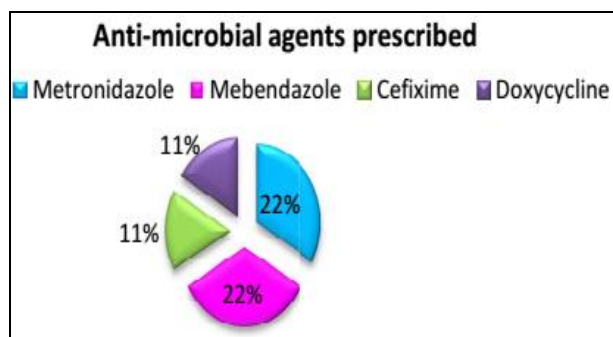


Fig. 7. Anti-microbials prescribed for the pregnant women for treatment of various infections.

8. Based on vitamin and mineral supplements prescribed:

In this study, among 100 patients 31% of folic acid was prescribed, 11% of calcium was prescribed, 27% of vitamin B12 was prescribed, 8% of Vitamin-B complex was prescribed, 8% of iron sucrose was prescribed, 6% of ferrous fumerate, 3% of Vitamin-B complex syrup and 8% of Vitamin-C was prescribed(Fig.8.).

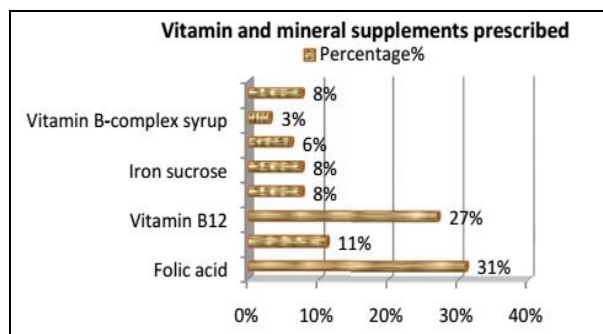


Fig. 8. Common vitamins and mineral supplements prescribed for pregnant women.

9. Based on Intravenous fluids prescribed:

Among 100 patients, 58% of ringer lactate was prescribed, 25% of dextrose normal saline was prescribed and 16% of normal saline was prescribed.

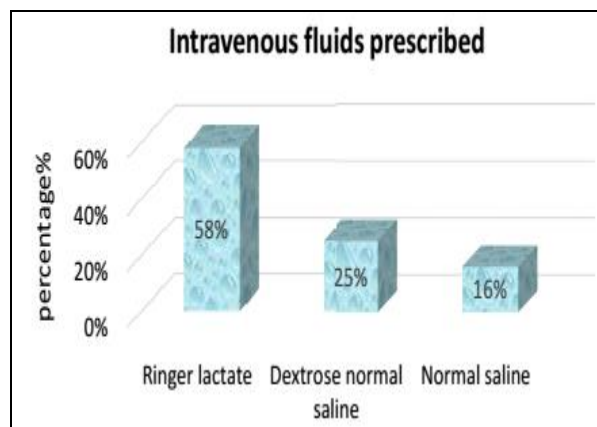


Fig. 9. Details of commonly administered Intravenous fluids for pregnant women.

10. Based on Anti-emetics prescribed:

Among 100 patients, 57.14% of Injection-Ondansetron was prescribed, 14% of Tablet-Ondansetron was used and 29% of tablet-Domperidone was prescribed.

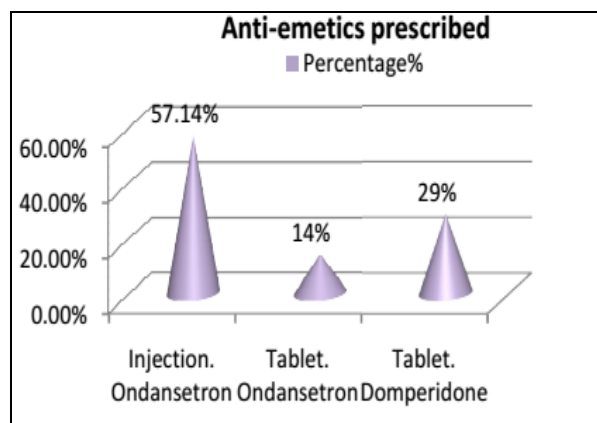


Fig.10. Common anti-emetics found in the prescription for pregnant women.

11. Based on category wise drug prescription among pregnant women:

In this study, among 100 patients 67% of vitamin and mineral supplements were prescribed, 12% of intravenous fluids were prescribed, 7% of anti-emetics were prescribed, 6% of anti-microbial agents were prescribed, 4% of anti-ulcer drugs were prescribed and 2% of analgesics and miscellaneous drugs were prescribed each. The list of various categories of drugs prescribed during pregnancy and their percentage distribution are given in Table.1 and Fig.11, respectively.

Table.1. List of various categories of drugs prescribed during pregnancy.

Category of drugs	No. of patients (N=100)	Percentage%
Vitamin and mineral supplements	67	67%
Intravenous fluids	12	12%
Anti-emetics	7	7%
Anti-microbial agents	6	6%
Anti-ulcer drugs	4	4%
Analgesics	2	2%
Miscellaneous	2	2%
MEAN±SD	14.28±21.75	100%

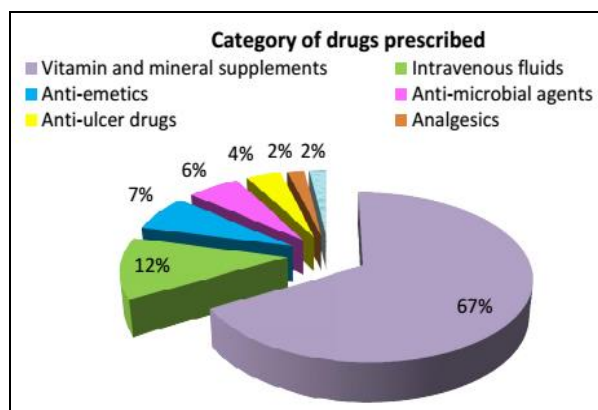


Fig.11. Percentage distribution of various categories of drugs prescribed for pregnant women.

DISCUSSION:

The present study evaluates the prescribing pattern of drugs among pregnant women carried out over a period of six months (September 2017 to February 2018). The majority of population (44%) belongs to the age group of 18-25 years. Dr. Mohammed and Suneel et al. conducted a study on prescribing pattern of drugs among pregnant women and concluded that vitamin supplements were the most commonly prescribed drugs [17]. Peri-conceptional folic acid or folic acid containing multi-vitamin supplements can intercept most neural-tube defects [18], substantial number of congenital abnormality in the cardiovascular system, urinary tract and limb deficiencies [19-21]. Vitamin and mineral supplements play a vital role in the prevention of maternal and child mortality and morbidity [22].

In the present study out of 100 patients, the majority of population (44%) belongs to the age group of 18-25 years. The minority of population (8%) belongs to the age group of 36-40 years. 17% of population belongs to first trimester, 26% of population belongs to second trimester and (57%) of population belongs to third trimester. Among 100 patients, highest percentage (45%) of Category-B drugs were prescribed and least percentage (1%) of Category-D drugs were prescribed. 44% of drugs prescribed were in tablet forms, 22% were in injection form and 19% were in capsule form. 67% of vitamin and mineral supplements were prescribed

followed by 12% of IV-fluids, 7% anti-emetics, 6% anti-microbial agents, 4% of anti-ulcer drugs, 2% analgesics and 2% of miscellaneous drugs were prescribed. The most commonly prescribed IV-fluid was ringer lactate (58%) and most commonly prescribed anti-emetic was Ondansetron (57%). The most commonly prescribe anti-microbial drugs were Metronidazole and Mebendazole (22% each). 54% of combination drugs were used.

Although it is very difficult to determine the effects of new drugs on the foetus prior marketing due to ethical reasons, newest drugs are not advised to be used during pregnancy [23].

LIMITATIONS:

The study was carried out for a period of six months. Further, the numbers of patients were low and the study was restricted only to one hospital.

CONCLUSION:

Overall the study results conclude that vitamin and mineral supplements were the most commonly prescribed drugs followed by Intravenous fluids and anti-emetics. Majority of antenatal women were in the third trimester. Category-D drugs which are possibly injurious to foetus were used to an extent of 1%. Anti-biotics were less used. Prescription by generic name was high and most of the drugs were prescribed from National List of Essential Medicines (NLEM) which represents rational prescription. Utilization of category B drugs must be decreased and avoidance of category D drugs is recommended.

This present study indicates a fine, safe and rational medication practice for numerous common indications.

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CONFLICT OF INTEREST:

No conflict of interest is declared by the authors.

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