

**DRUG PRESCRIBING PATTERN AMONG PREGNANT WOMEN IN
OBSTETRICS AND GYNAECOLOGY DEPARTMENT IN A RURAL
TERTIARY CARE TEACHING HOSPITAL**

By

Ms.LIYA ELSA ABRAHAM
B.Pharm.,

Reg. No:14PR005

*Dissertation Submitted to the
Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore*



*In partial fulfillment
Of the requirements for the degree of*

**MASTER OF PHARMACY
IN
PHARMACY PRACTICE**

Under the Guidance of

Mr. SATISH KUMAR B.P.
M. Pharm.,



**DEPARTMENT OF PHARMACY PRACTICE
SRI ADICHUNCHANAGIRI COLLEGE OF PHARMACY
B.G.NAGARA-571448, KARNATAKA, INDIA,**

2016

Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore



DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation/thesis entitled "**DRUG PRESCRIBING PATTERN AMONG PREGNANT WOMEN IN OBSTETRICS AND GYNAECOLOGY DEPARTMENT IN A RURAL TERTIARY CARE TEACHING HOSPITAL**" is a bonafide and genuine research work carried out by me under the guidance of **Mr. SATISH KUMAR B.P.** Associate Professor, Dept. of Pharmacy Practice, SAC College of Pharmacy, B.G.Nagara.

Date:

Place: B.G.Nagara

Ms.LIYA ELSA ABRAHAM.

Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore



CERTIFICATE BY THE GUIDE

This is to certify that the dissertation entitled “**DRUG PRESCRIBING PATTERN AMONG PREGNANT WOMEN IN OBSTETRICS AND GYNAECOLOGY DEPARTMENT IN A RURAL TERTIARY CARE TEACHING HOSPITAL**” is a bonafide research work done by **Ms. LIYA ELSA ABRAHAM** in partial fulfillment of the requirement for the degree of **Master Of Pharmacy In Pharmacy Practice**.

Date :

Place: B.G. Nagara

Mr. SATISH KUMAR B. P.

M. Pharm.,

Associate Professor,

Dept. Of Pharmacy Practice,

SAC College of Pharmacy,

B.G. Nagara-571448, Karnataka

Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore



ENDORSEMENT BY THE HOD AND PRINCIPAL

This is to certify that the dissertation entitled “**DRUG PRESCRIBING PATTERN AMONG PREGNANT WOMEN IN OBSTETRICS AND GYNAECOLOGY DEPARTMENT IN A RURAL TERTIARY CARE TEACHING HOSPITAL**” is a bonafide and genuine research work carried out by **Ms.LIYA ELSA ABRAHAM**.under the guidance of **Mr. SATISH KUMAR B.P.**Associate Professor, Department of Pharmacy Practice, Sri Adichunchanagiri College of Pharmacy, B.G.Nagara.

Mr. K.V.Ramanath
Assoc. Professor and Head
Department of Pharmacy Practice,
B.G.Nagara.

Dr.B. Ramesh
Principal
S.A.C. College of Pharmacy,
B.G.Nagara.

Date :

Date:

Place: B.G.Nagara

Place:B.G.Nagara

COPYRIGHT



DECLARATION BY THE CANDIDATE

I hereby declare that the **Rajiv Gandhi University of Health Sciences, Karnataka** shall have the rights to preserve, use and disseminate this dissertation / thesis in print or electronic format or academic / research purpose.

Date:

Signature of candidate

Place: B.G.Nagara

Ms.LIYA ELSA ABRAHAM.

© Rajiv Gandhi University of Health Sciences, Karnataka

ACKNOWLEDGEMENT

Acknowledgment

I thank the God Almighty for his choicest blessings showered upon me for the helping me for the successful completion of this dissertation.

I am greatly indebted to my parents Mr. P.V Abraham and Mrs. Sali Abraham and brother Mr. Linto Eldho Abraham for their unending love, faith, encouragement, prayers and support throughout what is inevitably a continuing but exciting experience.

With a deep sense of gratitude, I owe my sincere thanks to my guide, Mr. Satish Kumar B.P. Associate Professor, Department of Pharmacy Practice, Sri Adhichunchanagiri College of Pharmacy, B.G. Nagara, for his able guidance, critical evaluation, and constant encouragement which aided in the timely completion of this dissertation. I am extremely thankful for his guidance and support rendered.

I extend my heartfelt gratitude to Dr. B. RAMESH, Principal, S.A.C College of Pharmacy, B.G. Nagara, for his excellent timely support to complete this thesis work.

I would like to mention special thanks to Mr. K.V. RAMANATH, Head of the Department of Pharmacy Practice, and S.A.C. College of Pharmacy for the beneficent support during my project work.

My sincere thanks to Mr. M Kumaraswamy, Dr. Meenu Pandey, Mrs. Jamuna T R, Department of Pharmacy Practice, S.A.C College of Pharmacy, for providing their kind supports to do my project work.

A special thanks to my friends Dr. Abel Abraham Thomas, Ms Minnu George, Dr. Laxman Wagle and all my Pharmacy Practice seniors and fellow Pharm D students for their moral support and encouragement during the entire period of my study. I would like to thank for the guidance and support received from all the members who contributed and who are contributing to this project, it was vital for the success of the project. I am grateful for their constant support and help

LIYA ELSA ABRAHAM

LIST OF ABBREVIATIONS

| | |
|-------------|---|
| ADRs | Adverse Drug Reaction |
| AIMS | Adichunchanagiri Institute of Medical Sciences |
| BMI | Body Mass Index |
| EDL | Essential Drug List |
| OTC | Over The Counter Medication |
| WHO | World Health Organization |
| FDA | Food and Drug Administration |
| ANC | Antenatal Care |

ABSTRACT

Abstract

Introduction: Pregnant women often suffer from some chronic pathological conditions that requires continuous or interrupted treatment. Any medication that a pregnant woman takes could induce unintended effects which becomes a major challenge to the healthcare providers to avoid any risk to fetus as well as to the mother. A drug prescribing pattern helps to evaluate the prescribing practice among pregnant population and thereby reduce the extent of risk to the baby and mother. Hence the study is conducted to evaluate the present prescribing pattern and to access the knowledge regarding the drug use among pregnant women.

Methodology: A prospective and observational study was carried out in 150 pregnant women for a period of nine months. Relevant information required for the study was obtained from interview with the subjects as well as from treatment chart of subjects which were recorded by using a case report form. The prescription pattern was evaluated by WHO Prescribing indications and the drugs were classified based on the US FDA pregnancy category.

Results: Majority of subjects were under the age group of 21-25 (42%) who gained secondary education and 82% of them were unemployed. The mean BMI of pregnant women was $24.8 \pm 3.76 \text{ kg/m}^2$ and about 61.3% of the study subjects were having normal BMI. Majority of the patients were under primigravidity (46%) and were at third trimester (74%). The patients were mainly hospitalized for fever, gestational diabetes mellitus, gestational hypertension. About 574 drugs were prescribed, each prescription contained an average of 3.82 drugs. About 16.2 % of the total patients received at least one antibiotic in their prescription and 18.8 % of patients received at least one injection in their prescription. The total percentage of drugs prescribed in generic name was found to be 6.2% and percentage of drugs prescribed from Hospital Formulary was 92.1%. About 98.6% of the subjects were unknown about the risk associated with taking

Abstract

drugs during pregnancy. Antibiotics were prescribed to majority of pregnant women. Most of the drugs prescribed belong to category C.

Conclusion: This study clearly showed that prescribing pattern of drugs in pregnancy needs to be continuously evaluated in order to promote the more rational drug prescribing to decrease morbidity/mortality associated with the therapy.

CONTENTS

| SL.NO | CONTENTS | PAGE NO. |
|-------|----------------------|----------|
| 1. | INTRODUCTION | 1-5 |
| 2. | OBJECTIVES | 6 |
| 3. | REVIEW OF LITERATURE | 7-15 |
| 4. | METHODOLOGY | 16-17 |
| 5. | RESULTS | 18-27 |
| 6. | DISCUSSION | 28-32 |
| 7. | CONCLUSION | 33 |
| 8. | SUMMARY | 34 |
| 9. | LIMITATIONS | 35 |
| 10. | FUTURE DIRECTIONS | 36 |
| 11. | BIBLIOGRAPHY | 37-40 |
| 12. | ANNEXURE | 41 |

LIST OF TABLES

| Table No | Title | Page No |
|-----------------|--|----------------|
| 1 | Age distribution of patient population | 18 |
| 2 | Literacy status of patient population | 18 |
| 3 | Economic status of patient population | 18 |
| 4 | Body mass index | 19 |
| 5 | Level of gravida of patient population | 19 |
| 6 | Stage of pregnancy of patient population | 20 |
| 7 | WHO drug use prescribing indicators | 22 |
| 8 | Poly-pharmacy in prescriptions | 22 |
| 9 | Questionnaires about the knowledge of drugs use and answers to these questionnaires | 23 |
| 10 | Outcomes of inpatients in terms of length per hospital stay | 24 |
| 11 | Classification of drugs used | 25 |
| 12 | Prescribed drugs based on pregnancy category of drugs | 26 |

LIST OF FIGURES

| Graph No | Title | Page No |
|---------------------|---|--------------------|
| 1 | Employment status of patient population | 20 |
| 2 | Medication history of patient population | 21 |
| 3 | Diagnosis detail of patient population | 21 |
| 4 | Poly-pharmacy in prescriptions | 23 |
| 5 | Distribution of pregnancy category of prescribed drugs | 27 |

INTRODUCTION

Introduction

Pregnancy can be defined as the carrying of one or more offspring known as a fetus or embryo inside the uterus of a female. Pregnancy period consists of 40 weeks. Medical scientist divides this period into three trimesters. The first trimesters consist of 0-12 weeks, followed by the second, which consist of 13-28 week and the third for 29-40 weeks.¹

Pregnant women may have some chronic pathological conditions that require continuous or interrupted treatment (e.g., asthma, epilepsy, and hypertension). Also during pregnancy new medical conditions can develop and old ones can worsen (e.g. migraine, headache, hyperacidity, nausea and vomiting) which all requires drug therapy. So it becomes a major concern for pregnant women to take medication, whether prescription drugs, over-the counter or herbal medication.²

Recent studies regarding the drug use during pregnancy suggest that more than 80% of pregnant women take at least one type of medication during pregnancy. Mostly consumed drugs during pregnancy include vitamin and iron supplements, analgesics/anti-pyretic, anti-infective and antihistamines.³

Pregnancy is a physiological state where in the each medication that the patient takes could present a challenge and a concern to theHealthcare team due to altered drug pharmacokinetics and drug crossing the placenta, which could possibly cause harm to the fetus.² The harm to the fetus could happen in several ways. It can directly act on the fetus, which may cause even permanent damage to the fetus or abnormal development of the fetus, which all could eventually lead to birth defect or death.^{1, 4}

Medications that a pregnant mother takes can pass to the fetus, particularly during the first trimester and first part of the second trimester. Fifth week after conception seems to be most crucial time for a fetus as it is the period whenorganogenesis takes place which is a time of considerable development. During these crucial weeks of organ formation, the fetus matures very quickly with increased susceptibility to outside influences which includes medications and

Introduction

their consequent harmful effects which may not be easily noticed immediately after birth.⁴ So the prescribing pattern of drugs should be changed with each trimester and must be specific without causing any harmful effects to the fetus or mother.⁵ For example, when ACE inhibitors are used during the second and third trimesters of pregnancy, it may cause prolonged fetal hypotension, renal tubular dysplasia, growth retardation and death.⁶

The definite knowledge of drugs that can be used in pregnancy is complicated because of limited information that whether the drug may or may not cause benefit to the mother and fetus as pregnant women are rarely included in clinical trials. In today's medical scenario of increasing risk to the fetus and mother and also taking into consideration about the Thalidomide crisis in the 1960's and the teratogenic effects of the use of diethylstilboestrol in 1971, In 1979, the United States Food and Drug Administration (FDA) introduced a system of rating pregnancy-risk associated with pharmacological agents, which categorized all drugs approved after 1983 into one of five pregnancy risk categories (A, B, C, D, and X)⁷

- Category A- Controlled studies in women fail to demonstrate a risk to the fetus in the first trimester, there is no evidence of a risk in later trimesters and the possibilities of fetal harm appear remote.
- Category B- Either animal reproduction studies have not demonstrated a fetal risk but there are no controlled studies in pregnant women or animal reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester and there is no evidence of a risk in later trimesters.
- Category C- Either studies in animals have revealed an adverse effect on the fetus (teratogenic, embryological, or other) and there are no controlled studies in women and animals are not available. Drugs should be given only if the potential benefit justifies the potential risk to the fetus.

Introduction

- Category D-There is positive evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life threatening situation or a serious disease for which safer drugs cannot be used or are ineffective).
- Category X- Studies in animals or human beings have demonstrated fetal abnormalities, or there is evidence of fetal risk based on human experience or both and the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. The drug being contraindicated in women who are or may become pregnant.⁸

In addition to the threat associated with fetal exposure to teratogenic drugs, there are risks associated with lack of information about the teratogenicity of drugs, which lead to unnecessary abortion or the avoidance of essential treatment. The drug companies and health care professionals take ample effort to protect women and their unborn babies from both risks.³ Beliefs about medication have been shown to strongly associate with patient adherence to medication. A patient's knowledge and capacity to get knowledge are important in the development of beliefs. Lack of awareness about the safety use of drugs among pregnant women may result in poor patient compliance and eventually lead to medication non-adherence.²

From studies, it was evident that the reasons for medication non-adherence could be due to illiteracy, socioeconomic level, age, occupation, lifestyle, common beliefs as well as severity of illness. Some pregnant women may have the sufficient knowledge about medication they take during a pregnancy but there is a "general fear" from the medications. The hesitation in medication use by pregnant women can result in serious consequences which include termination of a wanted pregnancy, reluctance to drug-use for nausea and vomiting, preference of herbal medications, non-compliance to prescriber's medication, inclination toward OTC

Introduction

drugs and other self medication methods which could all lead to increased hospital stay and unwanted expenses for the patient, thereby altering their quality of life.² So it is important to take feedback from the patients regarding how they take the medication possible side effect associated with the medication and also their basic knowledge about medication and educate, counsel the patient regarding safe use of drugs in pregnancy.⁹

It has been found from studies that congenital abnormalities caused by human teratogenic drugs accounts for less than 1% when compared with the total congenital abnormalities. Apart from this, India is a country where there is easy availability of drugs along with inadequate health services which makes increased proportions of drugs to be used as self medication (for common complaints and infective conditions), as compared to the prescribed drugs. Drug prescribing studies can help in minimizing the inherent risk of drug use in pregnancy by establishing a profile of drug consumption, evaluating the existing health services and investigating the interventional measures. Therefore it becomes important to examine the pattern of drug use in pregnancy to see to what extent there may be a chance to improve in the light of current knowledge.¹⁰

The study of prescribing pattern is also a major component of medical audit, which require monitoring, evaluation and necessary modification in the prescribing practice of the prescribers to rational and cost effective medical care. Therefore, drug prescribing studies can identify the problem and provide feedback to prescribers so as to create awareness about the irrational use of drugs. Rational drug prescribing is defined as the use of the least numbers of drugs to obtain the best possible effect in the shortest period and at reasonable cost.¹

A wise use of drugs, adequate knowledge, positive approach and awareness towards the drug can provide a better quality of life to both mother and fetus by decreasing the morbidity

Introduction

and mortality in mother and fetus and so are considered to be the mandatory prerequisites for good maternal and child health.¹

A drug prescribing pattern in pregnancy helps to evaluate what extent there may be scope for improvement in the current clinical practice. In our hospital, there is no such study before for the safety and effectiveness of drug prescribed during pregnancy. Keeping this in mind this study was planned to assess drug prescribing patterns among pregnant women and describe the pregnancy risk level of medications prescribed during pregnancy according to the US-FDA pregnancy risk classification of drugs.¹¹

At this stage of increasing abortions and fetal abnormalities, evaluation of drug prescribing practice in pregnancy tends to be very important. As there are only less clinical studies done at pregnant population, a drug prescribing pattern is always an asset to the new era of pharmacotherapy whereby it is easy to estimate the risk benefit association between the use of the drug in pregnant population and also to develop standards for accessing and reporting antenatal exposures to refine any further research in this field.

Hence the study is conducted to evaluate the present prescribing patterns and to access the knowledge regarding the drug use among pregnant woman and thereby improve the drug prescribing in pregnant population.

OBJECTIVES

Objectives

Primary Objective

- To study and evaluate drug prescribing pattern in pregnant women.

Secondary Objective

- To explore the knowledge and awareness on drug use by the antenatal mother.

REVIEW OF LITERATURE

Review of literature

Drug prescribing studies was initially used to know about the market purpose only, which has been extending to evaluate the quality and comparing prescribing trends of specific drugs. These studies are useful not only in obtaining the usage pattern of drugs, but also to identify and manage drug - drug interactions and adverse drug interactions (ADRs), the major drug reaction related problems in the therapy of diseases lead to the evolution of new branch called as pharmacovigilance.¹²

In India, due to easy availability of drugs along with inadequate health services, majority of the drugs are used as self medication as compared to the prescribed drugs. Therefore majority of patients always face the threat of adverse drug reaction and drug interaction between active hidden ingredients of both herbal and allopathic drugs. The use of medications in pregnancy is often based on complex risk benefit discussions between physicians and patients, two important factors to consider while accessing the teratogenic potential of a medication are the stage of pregnancy at which the exposure occurred and the medication taken.¹³

Most women would like to avoid pharmacologic therapy during pregnancy if at all possible. Pre-existing conditions and other problems occurring during the pregnancy may require continuation or initiation of drug therapy. In rare circumstances, fetal therapy can be administered through the mother. It is important to understand maternal pharmacokinetic changes, placental drug transfer, eventual disposition of the drug and limitations of the FDA classification system to safely treat pregnant women.

A. Fetal development. The effects of drug therapy in pregnancy depend largely on the stage of fetal development during which the exposure occurs. Pregnancies are normally dated from the first day of the last menstrual cycle;

Review of literature

1. Weeks 1-2. During the first days after fertilization, the zygote forms in the fallopian tube. Over the next few days, division of the zygote eventually results in the formation of the blastocyst, that will ultimately become the fetus, the placenta.

2. Weeks 3-8. It is during this time that the placenta becomes fully functional and organogenesis occurs. This is the most critical period of development, when the embryo is most susceptible to teratogens. All major organ systems develop structurally during these weeks.

3. Weeks 9-38 (the fetal period). At the 9th week, the embryo is referred to as a fetus. Development during this time is primarily functional, with overall growth occurring throughout. The fetus may be at risk during exposure to potentially fetotoxic drugs or viruses. Exposure to a drug is generally not associated with major congenital malformations; however, minor congenital anomalies and functional defects may occur during this time.

Teratogenic drugs

Teratogens are defined as agents that increase the risk of or cause a congenital anomaly to occur. These defects can be structural, functional, or behavioral in nature. Women may blame a specific exposure during their pregnancy as the cause of a fetal anomaly. However, the defect may have no known cause, as is the case in 3% of all births in the United States.

Examples of teratogenic agents.

(1) Vitamin A derivatives. Drugs such as isotretinoin (Accutane) and etretinate (Tegison) are potent teratogens in humans. These agents should be discontinued several months before pregnancy.

(2) Warfarin (Coumadin) is most teratogenic in the first trimester (weeks 6-9), but can also cause malformations during the second and third trimesters as well. Early exposure is associated

Review of literature

with a pattern of defects known as fetal warfarin syndrome. These defects can include hypoplasia of the nose and extremities, congenital heart disease and seizures. Heparins may be an appropriate substitute when anticoagulation is necessary; however, they are not as effective for preventing thrombosis in women with artificial heart valves.

(3) Androgenic agents can cause virilization of female fetuses, creating ambiguous genitalia. Finasteride (Propecia) can cause genital abnormalities in male offspring. Estrogen and progestins, fortunately, do not have this effect.

(4) Infections. Viral infections, such as rubella, cytomegalovirus, parvovirus, coxsackie, and varicella can be associated with growth restriction, congenital anomalies, premature delivery, and potential embryotoxicity or fetal demise. Nearly all maternal infections have been thought to cause growth restriction.

(5) Other problematic therapies. Some agents given during pregnancy may result in pharmacological effects that are not necessarily toxic, yet need to be considered when medications are given during the later weeks of pregnancy.¹⁴

Review of literature

Zaki N M, Albarrage A A *et al.*, did a study on use attitude and knowledge of medication among pregnant women in Saudi. They did a cross sectional study on 760 pregnant women attending obstetrics clinic, filled a semi-structured questionnaire which contain socio demographic background, medication use during pregnancy, source of information and beliefs about medication. From the study they concluded that women had a positive attitude toward medications in general but they believed pregnant women should be more cautious regarding drug use during pregnancy.²

Review of literature

Reddy B S, Patil N R, Hinchageri S, Kamal S *et al.*, did a study on assessing the pattern of drug use among pregnant women and evaluating the impact of counseling on medication adherence among them. They did a prospective study on 100 pregnant women in which prescriptions of the pregnant women containing at least one drug were analysed and the drugs prescribed were classified according to their pharmacological class. From the study they concluded that majority of drugs prescribed belonged to vitamins, minerals and nutrients which play a very major role in fetal development.³

Pereira LM P *et al.*, conducted a study on drug utilization pattern in pregnant women. It was a cross sectional case study in women attending antenatal clinics at Mount Hope Hospital Trinidad West Indies. Women who attended the clinic for routine care were interviewed on the medication they took. They concluded that most women took multivitamin (59.8%) and iron/folic acid (54.2%) and (20%) supplemented calcium. Very few women (2%) took herbal medication. Paracetamol was the most OTC medication in all trimesters.⁴

Rathod AM *et al.*, did a study on prescribing trends in antenatal care at tertiary level teaching hospital of Vidarbha region. It was a cross sectional study conducted at Acharya Vinoba Bhave Rural Hospital Maharashtra. Copies of outpatient drug prescription were assessed for dose strength, dosage schedule, duration of therapy. The study was conducted for a period of 3 months in the OPD of obstetrics and gynecology. From the study they concluded that there was a careful prescription behavior of the physician to pregnant women under antenatal care, As well as the highest group prescribed followed by antibacterial drugs and antacids.⁵

Rohra D K *et al.*, conducted study on Drug –prescribing patterns during pregnancy in the tertiary care hospital of Pakistan. Copies of outpatient prescription given to pregnant patients

Review of literature

were collected and drugs were classified according to the pharmacological class and their teratogenic potential. From this study they concluded that less than 1% pregnant women attending tertiary care hospital in Pakistan are prescribed teratogenic drugs. The prescribing practices of Pakistan physician are similar to that western countries.⁶

Agarwal M *et al.*, did a study on prescribing pattern of drug in the department of obstetrics and gynecology in expecting mothers in Jazan region, KSA. They conducted prospective cross sectional study for twelve months. A total of 1012 prescriptions belonging to obstetrics and gynecology patients were collected from hospital's pharmacy department. From the study they concluded that average number of drugs per patient was found to be 3.30. The most frequently prescribed drugs were oral iron, folic acid preparation, antibiotics and analgesics. Overall drug use pattern is rational with few exceptions.⁷

Priya P.P *et al.*, conducted a study on pattern of drug use in pregnant women and evaluating the effect of supplements on growth of fetus according to FDA categorization. It was a prospective observational study conducted with 280 pregnant women who visited IP and OP departments of obstetrics and gynecology in tertiary care teaching hospital. They followed prescriptions and done case sheet verification and fetus growth were examined by using ultrasound scan up to their delivery. The result of study were that most of the drug prescribed are FDA category A(29.02%) and C(28.41%) in which supplements majorly prescribed were safer and the supplements were necessary to increase the weight of fetus.⁸

Gadisa DA, Guyo A Wet *et al.*, conducted a study on drug prescribing pattern and its potential fetal harm among pregnant in BISHOFTU general hospital, Oromia regional state Ethiopia. It was a retrospective study where all drug prescription of pregnant women prescribed from march 2013

Review of literature

to march 2014 were analyzed using a structural data collection form. He concluded that iron and folic acids are the most frequently prescribed drugs and also prescription pattern during pregnancy in the hospital is encouraging except few drugs.¹¹

Stephansson O *et al.*, did a study on drug use during pregnancy in Sweden –assessed by the prescribed Drug Register and Medical Birth Register. They did the study from a population based cohort of 102,995 women who gave birth in 2007. They also used a unique personal registration number from where information on dispensed drug from the Prescribed Drug Register was obtained prior to during and after the pregnancy and compared with Swedish Medical Birth Register information on drug use from standardized antenatal care medical records. From the study they concluded that large proportion of women filled a prescription during pregnancy or lactating period in which there was high usage of drugs used for chronic condition but low for occasional use.¹⁵

Gawde S R *et al.*, conducted a study on Drug Prescription pattern in pregnant women attending antenatal outpatient department of a tertiary care hospital. It was a cross sectional study conducted by reviewing the antenatal care outpatient department consisting of 760 pregnant women Demographic profile, medical history and drug intake in current pregnancy was noted. The prescription pattern was assessed and drugs were classified based on US FDA risk classification. It showed that all pregnant women provided with prophylactic iron and folic acid therapy. Majority of the patient were prescribed category A and B drugs. No patient was given with category X drugs. The occurrences of contraindicated medication are desirably low.¹⁶

Joshi Het *al.*, conducted a study on drug use pattern during pregnancy a prospective study at tertiary care teaching hospital. This was carried out to find out and evaluate the pattern of drug

Review of literature

use in women attending antenatal clinical of obstetrics and gynecology department at a tertiary teaching hospital. Data were collected which include patient's demographic details, pregnancy duration, chief complaints and were analyzed according to FDA drug risk category and trimester wise drug use pattern. They concluded that iron calcium and folic acid were the most frequently prescribed drugs and also number of drugs from the essential drug list and prescribing by generic names were less.¹⁷

Daw J R *et al.*, conducted a study on prescribing drug use in pregnancy retrospective population based study in British Columbia, Canada. The study aimed to measure the frequency, timing and type of medicine used before, during and after prescribing in a Canadian population. Data from prescription filled were analyzed and were classified by therapeutic category and FDA pregnancy risk category. They concluded that majority of pregnant women in British Columbia filled at least one prescription. The prevalence of maternal prescription drug use emphasizes the need for post marketing evaluation of the risk-benefit profiles of pharmaceuticals in pregnancy.¹⁸

Negasa M, Tigabu B M *et al.*, conducted a study on drug prescribing pattern among pregnant mothers attending obstetrics and gynecology in Hiwot Fansa specialized teaching hospital Ethiopia. It was a retrospective cross sectional study and a was employed to assess drug prescribing pattern and teratogenicity risk among pregnant women who received any clinical services from 11th September 2012 to 31st April 2013. He concluded that antibiotics were commonly prescribed along with vitamin and mineral while there were category D and category X drug prescribed inappropriately to some of patients. Such inappropriate drugs should not be underestimated because it definitely affects the life of both the mother and the fetus.¹⁹

Review of literature

Olesen C *et al.*, conducted a study on prescribing during pregnancy and lactation with reference to the Swedish classification system. It was a population based study among Danish women. All prescription obtained from Danish Medical Birth Registry were set against the Swedish classification of risk of drugs use in pregnancy and lactation. From this study they concluded that during pregnancy, safe, potentially harmful and non classifiable drugs accounts for 40.9%, 26.6% and 28.7% respectively. The proportion of women who redeemed drugs was 29.2%, 8.6%, 18.7% and 0.9% from drug groups A, B, C and D respectively and found that drugs pregnancy and lactation a high proportion of women were exposed to one or more drugs in high risk groups.²⁰

Bakker M K *et al.*, did a study on drug prescribing patterns before, during and after pregnancy for chronic, occasional and pregnancy-related drugs in the Netherlands. It was a cohort based study. Here drugs were classified into three categories i.e. drugs for chronic condition, for occasional use, for pregnancy related symptom and also classified according to the Australian classification system. They concluded that about 79.1% of the women received at least one prescription during pregnancy. The prescription rate for most of drugs for chronic condition and for occasional use decreased during pregnancy, whereas, as expected the prescription rate for pregnancy related drugs increased. The prescription of harmful drugs is more commonly associated with drugs for occasional use rather than with drugs for chronic condition.²¹

Kumarjit S *et al.*, did a study on prescription pattern of drugs during pregnancy in a tertiary care centre. They conducted a retrospective study and collected data from 150 pregnant women who have delivered in the tertiary care hospital. They collected the informations which include gravida, number of ANC visits per pregnant woman, disease status and the drugs prescribed

Review of literature

during pregnancy. They concluded that among diseases suffered pre-eclampsia was the most frequent (45.33%) followed by gastrointestinal disturbances (32%). Nutritional supplements including iron and folic acid supplements were the most commonly prescribed in more than 93%. Cephalosporin was the most commonly prescribed antimicrobials for systemic infections.²²

Ilyaz Md *et al.*, did a study on drug utilization pattern in pregnancy- a scope for improvement in the current prescribing practices. It was a cross-sectional study conducted in 400 pregnant women attending Antenatal Out Patient Department and collected data regarding their demographic details present and past history of associated medical, surgical, gynaecological and obstetrical illness, number of drugs prescribed per prescription, generic/brand names, drug dose, dosage form, frequency, duration of treatment were collected, sorted and classified in accordance with US FDA risk classification for pregnancy and they concluded that the average drugs prescribed were 6.25 per prescription. Iron, Folic acid and Calcium were the main drug of choice during pregnancy, either alone or in combination with other drugs. And most of the drugs were of US FDA risk category B and none of the category X drugs was prescribed.²³

METHODOLOGY

Methodology

STUDY SITE

The study was conducted in Sri Adichunchanagiri institute of Medical Science.

STUDY DESIGN

This study was a Prospective and Observational study.

STUDY PERIOD

This study was conducted for a period of nine months.

STUDY APPROVAL

The study was approved by Institutional Ethical Committee, AIMS, and B.G.Nagara.

STUDY CRITERIA

Inclusion criteria:

- Pregnant women who visited IP department of the obstetrics and gynecology were included in this study.
- The patients who werewilling to participate in the study criteria.

Exclusion Criteria

- Gynaec, lactating women and abortion cases.

SOURCE OF DATA

Patient data which was relevant to the study was obtained from the hospital.

STUDY MATERIALS

- Patient's case notes
- Medication/treatment chart
- Suitably designed data collection form.
- Laboratory data reports and other relevant sources

Methodology

METHOD OF DATA COLLECTION

- Patients were enrolled into the study, after taking their prior consent and also by considering inclusion & exclusion criteria. All the necessary and relevant baseline information was collected on a “Patient data collection form”, which included patient demographic details like age, socioeconomic status, gravidity, family income, educational status, past and present medical/medication history, lab investigation data, physician medication order Sheet.
- The inpatient case records were reviewed daily also checked for the details like dose, frequency, route, dosage form, administration of the medication as per the orders.
- The prescriptions were also assessed for pregnancy category and duration of therapy. The prescription was checked for correctness of drug use, benefits by referring various resources. If any problem associated with drug use were observed, such as drug interaction, ADRs, Dose adjustments or medication errors, interventions were done duly.
- The WHO core prescribing indicators were used in the study, which included average number of drugs per prescription, the percentage of drug prescribed by generic name, percentage of injections prescribed, percentage of drugs prescribed from essential drug list/formulary, percentage of injections prescribed.
- The collected data was subjected for suitable statistical method.

RESEARCH AND ETHICAL COMMITTEE APPROVAL

(AHRC No: AIMS/IEC/1049/2015-16) Annexure

STATISTICAL ANALYSIS

The study data was analyzed by using statistics such as Microsoft Excel 2007.

RESULTS

Results

Table 1: Age distribution of patient population

| Age group | Frequency(N) | Percentage (%) |
|-----------|--------------|----------------|
| 15-20 | 34 | 22.6% |
| 21-25 | 84 | 56% |
| 26-30 | 31 | 20.6% |
| 31-35 | 1 | 0.6% |
| Total | 150 | 100% |

Among the 150 subject population majority of the subjects were under the age group of 21 to 25 i.e. (56%) followed by 15 to 20 (22.6%) as shown in Table 1.

Table 2: Literacy status of patient population

| Literacy level | Frequency(N) | Percentage (%) |
|---------------------|--------------|----------------|
| Uneducated | 4 | 2.6% |
| Primary education | 31 | 20.6% |
| Secondary education | 63 | 42% |
| Tertiary education | 52 | 34.6% |
| Total | 150 | 100% |

Among the 150 subject population majority of the subjects gained secondary education, i.e. 42%, followed by 34.6% of the population gained tertiary education as shown in Table 2.

Table 3: Economic status of patient population

| Economic Status(INR) | Frequency(N) | Percentage(%) |
|----------------------|--------------|---------------|
| >5000 | 1 | 0.6% |
| 5000-10000 | 15 | 10% |
| 10000-30000 | 87 | 58% |
| >30000 | 47 | 31.3% |
| Total | 150 | 100% |

Results

Among the 150 subjects population majority of the subjects were under the economic status of 10,000 – 30,000 i.e. 58% followed by 31.3% of population under category greater than 30,000 as shown in Table 3.

Table 4: Body mass index Distribution

| BMI index | Frequency(N) | Percentage (%) |
|--|--------------|----------------|
| Less than 18.5(underweight) | 0 | 0 |
| 18.5 or more and less than 25(normal) | 92 | 61.3% |
| 25 or more and less than 30 (overweight) | 42 | 28% |
| 30 or more(obese) | 16 | 10.6% |
| Mean BMI 24.8 ± 3.76 kg/m ² | | |

The mean body mass index of pregnant women was 24.8 ± 3.76 kg/m². About 61.33% of population i.e. 92 subjects out of 150 were having normal weight and 42 subjects (28%) were overweight, followed by 16 subjects (10.6%) were obese as shown in Table 4.

Table 5: Level of gravida of patient population

| Gravid | Frequency (N) | Percentage (%) |
|-------------------|---------------|----------------|
| Primigravida | 69 | 46% |
| Secondary gravida | 47 | 31.3% |
| Multi gravida | 34 | 22.6% |
| Total | 150 | 100% |

Majority of the patients were primigravida 69 (46%), followed by secondary gravid 47 (31.3%) and multi gravida 34 (22.6%) as shown in Table 5.

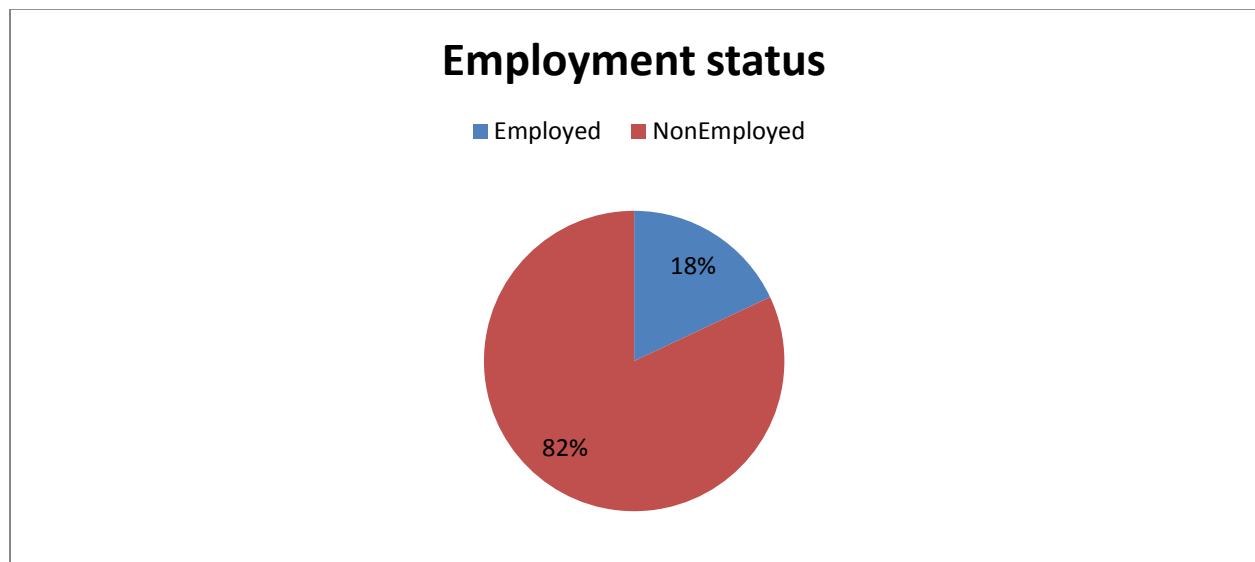
Results

Table 6: Stage of pregnancy of patient population

| Trimester | Frequency (N) | Percentage (%) |
|---------------|---------------|----------------|
| 1st trimester | 13 | 8.6% |
| 2nd trimester | 25 | 16.6% |
| 3rd trimester | 112 | 74.6% |
| Total | 150 | 100% |

In 150 pregnant women, 13 subjects (8.6%) were hospitalized during the first trimester, followed by 25 subjects (16.6%) were in the second trimester and 112 subjects (74.6%) were in the third trimester as shown in Table 6.

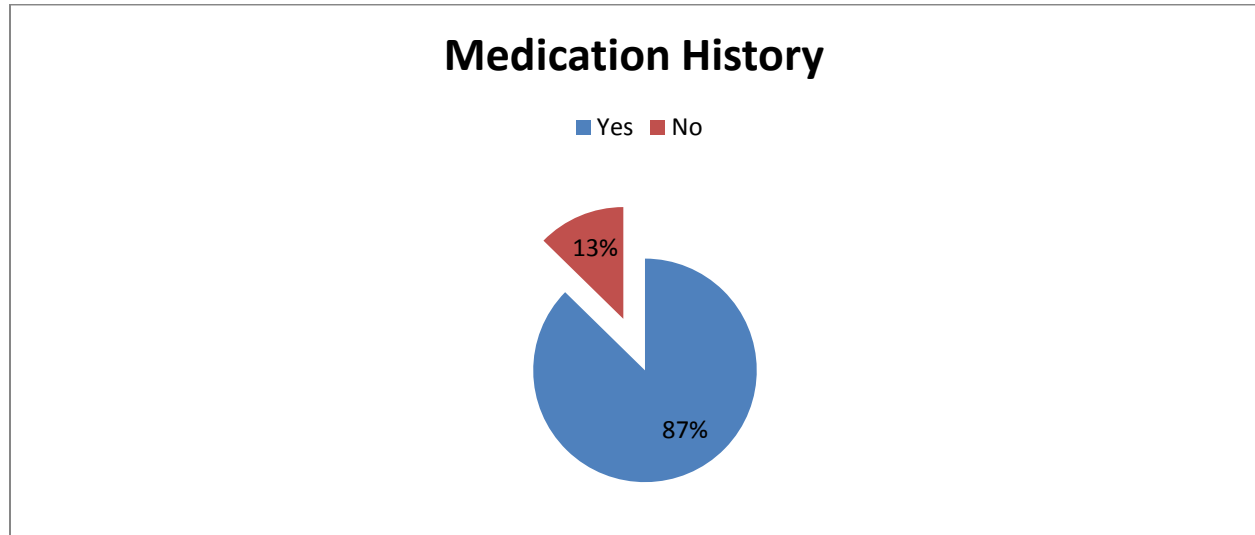
Figure 1: Employment status of patient population



This graph showed that 82% of pregnant women were unemployed and 18% of them were employed as shown in Figure 1.

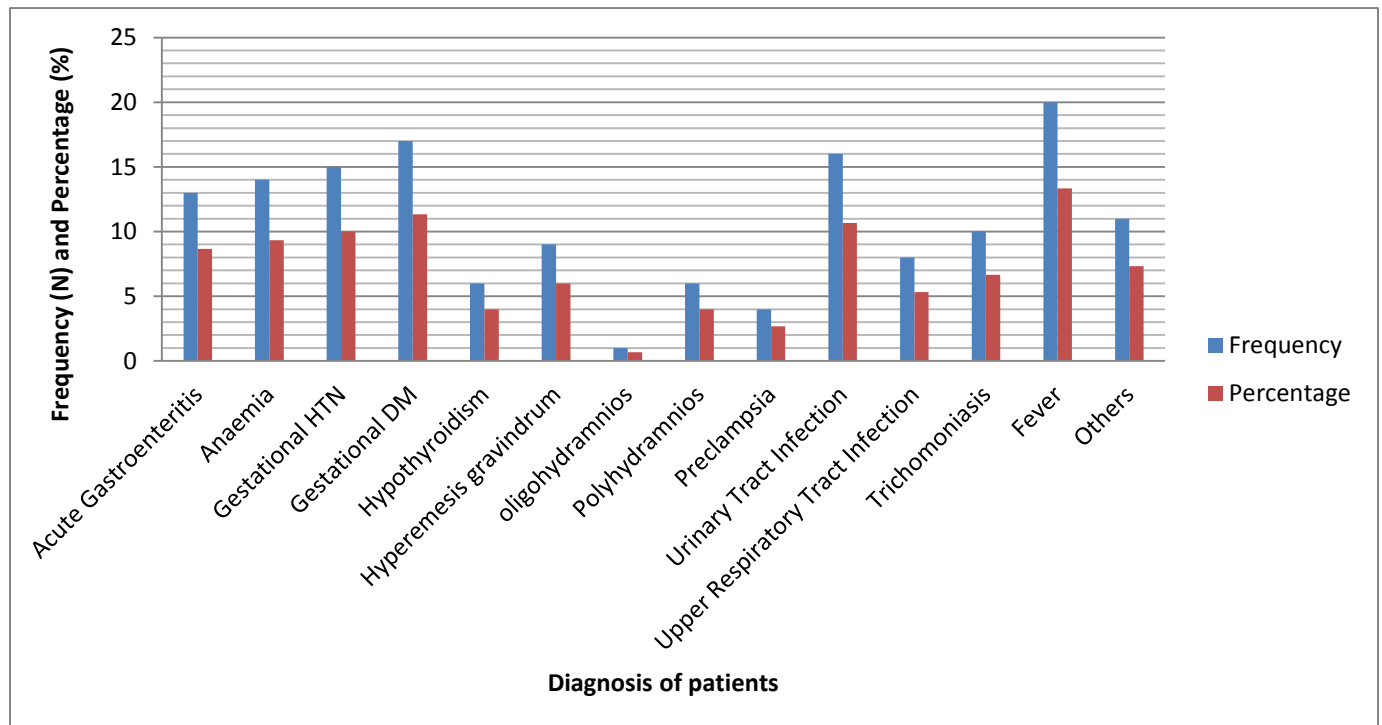
Results

Figure 2: Medication history of patient population



Patients with 87% of them were having medication history, and 13% of them were devoid of medication history as shown in Figure 2.

Figure 3: Diagnosis detail of patient population



Results

The majority of patients were diagnosed with fever followed by gestational diabetes mellitus, urinary tract infection, gestational hypertension, anemia, acute gastroenteritis, trichomoniasis, hyper emesis gravidarum upper respiratory tract infection, hypothyroidism, polyhydramnios, pre-eclampsia and oligohydramnios as shown in Figure 3.

Table 7: WHO drug use prescribing indicators

| WHO prescribing indicators | Values |
|--|--------|
| Total number of drugs prescribed | 574 |
| Average number of drugs/prescription | 3.82 |
| % of drugs prescribed by generic name | 6.2% |
| % of injections prescribed | 18.8% |
| % of drugs prescribed from hospital formulary. | 92.1% |
| % of antibiotics prescribed | 16.2% |

While analyzing the number of drugs prescribed to pregnant women, it was found out that on the average, each prescription contained 3.82 drugs. 16.2% of the total patients received at least one antibiotic in their prescription and only 18.8% of patients received at least one injection in their prescription. The total percentage of drugs prescribed in generic name was found to be 6.2% and percentage of drug prescribed from hospital formulary was 92.1% as shown in Table 7.

Table 8: Poly-pharmacy in prescriptions

| No of drugs per prescription | Frequency (N) | Percentage (%) |
|------------------------------|---------------|----------------|
| 1 | 0 | 0% |
| 2 | 30 | 20% |
| 3 | 39 | 26% |
| 4 | 42 | 28% |
| 5 | 21 | 14% |
| 6 | 8 | 5.33% |
| 7 | 8 | 5.33% |
| 10 | 2 | 1.33% |

In this data, the majority of the prescriptions contained 4 drugs, i.e. about 28%, followed by 3 drugs i.e. about 26% as shown in Table 8.

Results

Figure 4: Poly-pharmacy in prescriptions

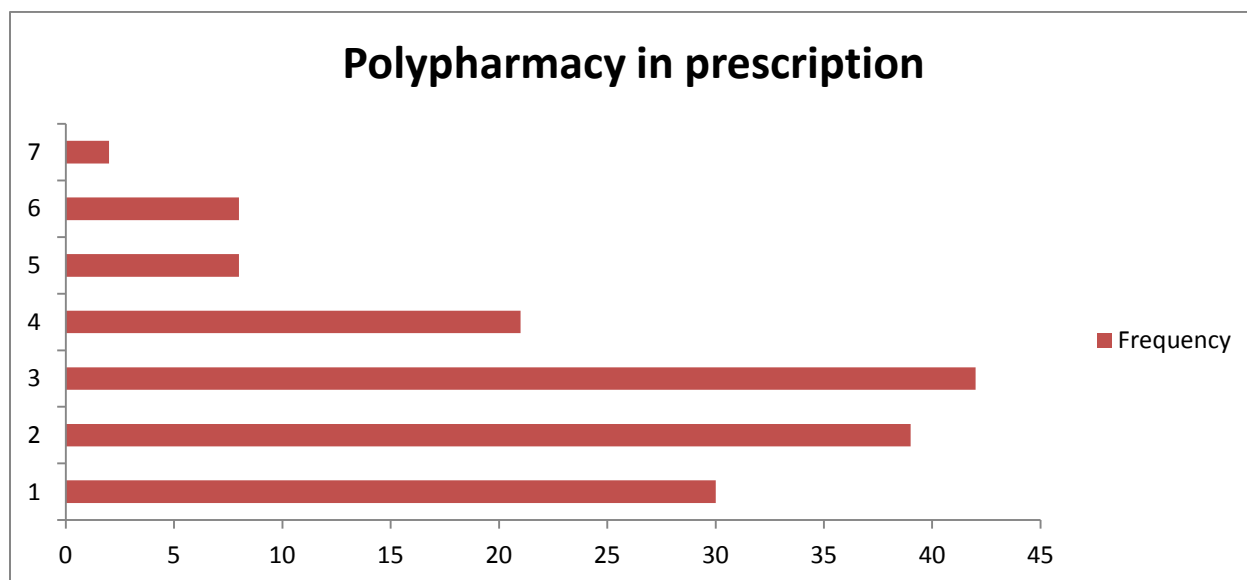


Table 9: Questionnaires about the knowledge of drugs use and answers to these questionnaires

| Questionnaires about the knowledge of drugs use | Answers to the questionnaires | | | |
|---|-------------------------------|-------------------------|-------------------------|--------------------|
| During prescribing, did the doctor give you complete information about the prescribing drugs? | 100% Yes | 0%No | | |
| Are you following the instructions from the prescriber? | 98.6% Yes | 0%No | 1.33% sometimes | |
| Do you meet your doctor regularly for check up? | 97.33% Yes | 2.66%No | | |
| Who gives you information about drugs? | 31.33% pharmacist | 62% gynecologist | 3.33% media | 3.33% others |
| Do you take drugs without prescriptions during pregnancy? | 16.66% Yes | 83.33% No | | |
| Do you use natural remedies during pregnancy | 100% Yes | 0 % No | | |
| Knowledge about the risk associated with taking drugs? | 98.66% don't know | 1.33% harmful to mother | 0% harmful to fetus | 0% harmful to both |
| How do you remember to take your medication? | 14% By color | 12% By size | 75% by help from others | |
| Do you think that current medication is benefiting you? | 100% Yes | 0%No | | |
| Is there any side effect while taking these drugs | 100%No | 0% Yes | | |

Results

From the questionnaire performed on the subjects, all the subjects' agreed that they were provided with complete information about the prescribed drugs by the doctor. About 98.6% of the subjects followed the instructions provided by the doctor. About 97.3% of the patients meet the doctor regularly for check up. The majority of the information to the subjects was provided by gynecologist about 62%, followed by pharmacist about 31.3%. About 16.6% of the subjects take drugs without prescriptions during pregnancy. About 98.6% of the subjects were unknown about the risk associated with taking drugs during pregnancy. 75% of the subjects remember to take the medication by help from others. Even single subject was not using any natural remedies during pregnancy and they also thought that their current medications were benefiting them. All subjects agreed that they do not experience any sorts of side effect while taking these drugs as shown in Table 9.

Table 10: Outcomes of inpatients in terms of length per hospital stay

| Days of hospitalization (days) | Frequency (N) | Percentage(%) |
|--------------------------------|---------------|---------------|
| 11 | 2 | 1.33% |
| 10 | 6 | 4% |
| 9 | 1 | 0.66% |
| 8 | 3 | 2% |
| 7 | 20 | 13.33% |
| 6 | 14 | 9.33% |
| 5 | 40 | 26.66% |
| 4 | 27 | 18% |
| 3 | 23 | 15.33% |
| 2 | 14 | 9.33% |
| Total | 150 | 100% |

Note: Length of hospitalization Median \pm IQR (5 ± 2.75) days

Results

The mean length of stay was 5 ± 2.75 . Majority of the hospitalization were for a period of 5 days, about 40 patients, followed by 3 days about 27 patients as shown in Table 10.

Table 11: Classification of drugs used

| Classification of drugs | Frequency of drugs(N) | Percentage (%) |
|-------------------------|-----------------------|----------------|
| Antiemetic | 21 | 3.65% |
| Antihypertensive | 33 | 5.74% |
| Calcium supplement | 100 | 17.42% |
| Hormonal preparation | 30 | 5.22% |
| Iron | 91 | 15.853% |
| Thyroid | 8 | 1.393% |
| Vitamin supplements | 30 | 5.226% |
| Analgesic/antipyretic | 18 | 3.135% |
| Ant diabetic | 8 | 1.39% |
| Antidiarrheal | 9 | 1.56% |
| Antianaemic | 7 | 1.21% |
| Antiprotozoal | 18 | 3.15% |
| Antiulcer | 47 | 8.18% |
| Antiasthmatic | 7 | 1.21% |
| Antibiotics | 105 | 18.29% |
| Antiparkinsonism | 1 | 0.17% |
| Laxatives | 3 | 0.52% |
| Urinary alkaliser | 25 | 4.35% |

Results

| | | |
|---------------------------|-----|-------|
| Antihelmintic | 6 | 1.04% |
| Antitussive | 1 | 0.17% |
| Cough and coldpreparation | 4 | 0.69% |
| Total | 574 | 100% |

Among the 574 drugs prescribed, 105 (18.2%) drugs prescribed were Antibiotics followed by calcium supplement about 100 (17.4%) followed by iron preparations 91 (15.8%) and anti-ulcer drugs 47 (8.1%) as shown in Table 11.

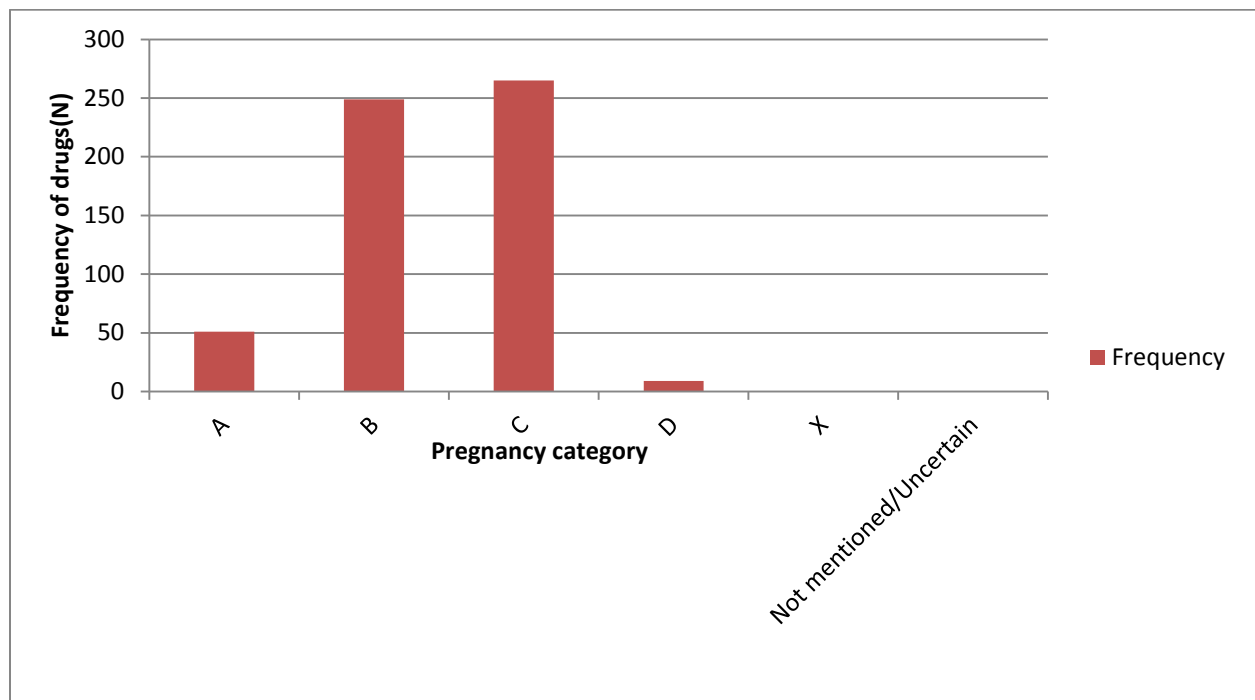
Table 12: Prescribed drugs based on pregnancy category of drugs

| Classification of drugs | A | B | C | D | X | Not certain/Unmentioned |
|---------------------------|----|-----|-----|---|---|-------------------------|
| Antiemetics | 6 | 15 | 0 | 0 | 0 | 0 |
| Antihypertensive | 1 | 10 | 22 | 0 | 0 | 0 |
| Calcium supplement | 0 | 3 | 97 | 0 | 0 | 0 |
| Hormonal preparation | 1 | 20 | 9 | 0 | 0 | 0 |
| Iron | 9 | 5 | 77 | 0 | 0 | 0 |
| Thyroid | 8 | 0 | 0 | 0 | 0 | 0 |
| Vitamin supplements | 26 | 0 | 4 | 0 | 0 | 0 |
| Analgesic/antipyretics | 0 | 16 | 2 | 0 | 0 | 0 |
| Antidiabetic | 0 | 8 | 0 | 0 | 0 | 0 |
| Antidiarrheal | 0 | 9 | 0 | 0 | 0 | 0 |
| Antianemic | 0 | 2 | 0 | 5 | 0 | 0 |
| Antiprotozoal | 0 | 14 | 4 | 0 | 0 | 0 |
| Anti ulcer | 0 | 46 | 1 | 0 | 0 | 0 |
| Antiasthmatic | 0 | 2 | 5 | 0 | 0 | 0 |
| Antibiotics | 0 | 93 | 12 | 0 | 0 | 0 |
| Antiparkinsonism | 0 | 1 | 0 | 0 | 0 | 0 |
| Laxative | 0 | 1 | 0 | 2 | 0 | 0 |
| Urinary Alkalizer | 0 | 1 | 24 | 0 | 0 | 0 |
| Anti helmintic | 0 | 3 | 3 | 0 | 0 | 0 |
| Antijussive | 0 | 0 | 1 | 0 | 0 | 0 |
| Cough and Coldpreparation | 0 | 0 | 2 | 2 | 0 | 0 |
| Total | 51 | 249 | 265 | 9 | 0 | 0 |

Results

The majority of the drugs prescribed were under the Category C (265 drugs), followed by Category B (249 drugs) followed by category A (51 drugs). Calcium supplements (97 drugs) constituted the more number of drugs in category C followed by Iron preparations (77 drugs). Whereas in Category B, Antibiotics (93 drugs) were the most prescribed drugs followed by Anti ulcer drug (46 drugs). Vitamin supplement (26 drugs) constituted more the number of drugs in Category A followed by iron preparations (9 drugs) as shown in Table no.12

Figure 5: Distribution of pregnancy category of prescribed drugs



DISCUSSION

Discussion

Pregnancy is considered to be a state when the woman may experience some chronic pathological conditions that may be a new medical condition or any old condition that have been worsened which all requires continuous or interrupted treatment. So it becomes a major concern for pregnant women to take medication, over-the counter or herbal medication.

Each medication that patient takes could present a challenge and a concern to the Healthcare team due to altered drug pharmacokinetics and drug crossing the placenta which could possibly cause harm to the fetus. As the studies that are conducted on pregnant population are less, it is always better to conduct an observational study on pregnant population to evaluate the prescribing pattern among the pregnant population.

Among the 150 study subjects, the majority of the subjects were under the age group of 21 to 25 i.e. (56%) followed by 15 to 20 (22.66%). The study conducted by **Priya P.Pet *et al***,⁸ and **Bhavya E *et al***,²⁴ also showed the same result which is 49.2% and 51.4% respectively.

The majority of the subjects gained secondary education, i.e. 42%, followed by 34.6% of the population gained Tertiary education. The results of study conducted by **Gawde S.R *et al***,¹⁶ also showed that the majority of the subjects gained secondary education, i.e. 43.7% and the study conducted by **Pereira LM P *et al***,⁴ also shows that the majority of the subjects acquired secondary education (50.7%). These results show the advantage of government policies initiated to educate females. This was an encouraging finding, as it can make them understand about the therapy and the benefits gained.

Majority of study subjects were unemployed about 82%. The study done by **Gawde S.R *et al***,¹⁶ also showed that majority of the patients were unemployed (85%). This shows that even if the subjects gained secondary education, they were unemployed either due to family burden or

Discussion

less opportunity to get a job as the study was conducted in a village area. This may not affect the source of family funding, but may definitely impose socioeconomic burden on the family.

The majority of the subjects were under the monthly household income of 10,000- 30,000 i.e. about 58%, followed by >30,000 about 31.3%, which was contradictory to the study conducted by **Pereira LM Pet al**,⁴ which majority of the subjects were under the monthly household income of 5000-10,000 i.e. 45.8%.

The mean body mass index of pregnant women was $24.8 \pm 3.76 \text{ kg/m}^2$ and about 61.3% of the study subjects were having normal BMI. The results from BMI suggest that as the subjects were gained by secondary education they could understand the value of being healthy during pregnancy.

The majority of the patients in our study were primigravida 69(46%), followed by secondary gravida 47 (31.3%) and multi gravida 34 (22.6%). The study conducted by **Ilyaz Md et al**,²³ also show the majority of the patients were under primigravida 37.5%, followed by secondary gravida 28%.

The majority of the hospital admissions in our study were during the third trimester 74%, followed by 16.6% were in the second trimester. The study conducted by **Mohammed M A et al**,²⁵ share the same result, i.e. 57.2 % were under third trimester followed by 26.3% were under second trimester. The study conducted by **Priya P Pet al**,⁸ shows the same result in terms of trimester i.e. 54.6% were in the third trimester and 41.4% were in the second trimester.

The majority of subjects in our study were hospitalized for fever followed by gestational diabetes mellitus, urinary tract infection, gestational hypertension, and anemia other than for delivery.

By the use of WHO prescribing indicators, the prescribing pattern was evaluated. It was found out that 574 drugs were prescribed to the subjects and on an average, each prescription

Discussion

contained 3.82 drugs. 16.2 % of the total patients received at least one antibiotic in their prescription and only 18.8 % of patients received at least one injection in their prescription. The total percentages of drugs prescribed in generic name were found to be 6.2% and percentage of drug prescribed from Hospital Formulary was 92.1 %. The majority of the subjects suffered from one or the other infection during pregnancy so that more antibiotics were prescribed and doctors preferred to give more medications via injections. A drug prescribed in generic name was less which states that much work should be done among doctors to educate them to prescribe in generic name and the majority of the drugs prescribed by the doctors were from Hospital Formulary.

The majority of the prescriptions contained 4 drugs, i.e. about 28%, followed by 3 drugs i.e. about 39%. The results so obtained were contradictory to the results obtained by **Negasa M *et al***,¹⁹ in which the majority of the prescriptions contained 1 drug i.e. 134 prescriptions. The mean length of stay in hospital was 5 ± 2.75 days. The majority of the hospitalizations were for a period of 5 days, about 40 patients followed by 3 days in 27 patients. The length of hospitalization was much less because the majority of the subjects were hospitalized for minor ailments such as fever, gestational diabetes, gestational hypertension etc. which required less hospital stay.

A questionnaire was given to all the subjects, all the subjects agreed that they were provided with complete information about the prescribed drugs by the doctor. This response was contradictory to the study done by **Zaki N M, *et al***,² in which the patients responded that they often donot get complete information about the prescribed drugs. About 98.6% of the subjects agreed that they follow the instructions provided by the doctor. About 97.3% of the patients meet the doctor regularly for checkup. The majority of the information to the subjects were provided

Discussion

by gynecologist i.e. about 62% followed by pharmacist about 31.3%.The response to this questionnaire was same in the study done by **Zaki N Met al,**²

About 83.3% of the subjects take drugs without prescriptions during pregnancy. About 98.6% of the subjects were unknown about the risk associated with taking drugs during pregnancy. The response to the questionnaire was contradictory to the study done by **Kureshee N Iet al.,**⁹ About 75% of the subjects remember to take the medication by taking help from others. Even no single subject was taking natural remedies during pregnancy and they think that their current medications are benefiting them. All subjects agreed that they do not experience any sorts of side effects while taking the drugs

Among the 574 drugs prescribed in our study, 105 drugs prescribed were Antibiotics about 18.2%, followed by calcium supplement about 17.4%, followed by iron preparations 15.8%, and anti-ulcer drugs 8.1%. The probable reason for this trend in prescribing may be due to the possible infections that occur during pregnancy. The occurrence of infection could be due to improper hygiene or due to the increased susceptibility to infection as the study was conducted in rural areas. Usually a pregnant woman becomes deficient of vitamins and minerals for which endogenous vitamins and minerals must be administered.The study done by **Mohammed M A et al,**²⁵ also supported that antibiotics were most used drugs during pregnancy.

The majority of the drugs prescribed were under the category C (265 drugs), followed by Category B (249 drugs) followed by category A (51 drugs). Calcium supplements (97 drugs) constituted the number of drugs in category C followed by iron preparations (77 drugs). Whereas in Category B, Antibiotics (93 drugs) were the most prescribed drugs followed by Antiulcer drug (46 drugs). Vitamin supplement (26 drugs) constituted the more number of drugs in category A followed by iron preparations (9 drugs).The study done by **Mohammed M Aet al,**²⁵ also share

Discussion

the same result, i.e. majority of the drugs prescribed in their study was Category C (56.3%). followed by category B (48.7%) followed by category A (35.4%).

CONCLUSION

Conclusion

Drug prescribing study continuously helps to rule out and modify if there is any irrational prescribing of drugs. A prospective and observational study was done on 150 pregnant subjects who showed rationality in the majority of cases. The majority of the pregnant women were under the age group 21-25. Even though this hospital is situated in a rural area, majority of the pregnant women who visited the ANC completed their secondary education but majority of the subjects were unemployed. The economic status of the pregnant women ranges from 10,000-30,000 monthly income, but their lifestyle belongs to an average category. The education they attained is expected to be the reason for the majority of the subjects to have a normal BMI and be in healthy state. The majority of subjects were admitted with primigravidity and also during the third trimester. All subjects suffered with some ailments that required continuous or interrupted treatment (such as fever, diabetes and hypertension etc.). The prescribing pattern needs to be evaluated as part of the study and therefore WHO indicators were used which included about 6 parameters. Antibiotics were most prescribed drug followed by vitamins and minerals. Thus elucidating the percentage of infections seen in pregnant population and also majority of drugs prescribed were under Category C which signifies safe drugs were prescribed during pregnancy at this hospital. The questionnaires being prepared were given to the subjects that helped to estimate attitude and beliefs about the medication which includes awareness among the subjects about the drugs and possible risk associated with such medication. From the study it can be concluded that further measures must be taken in large scale to evaluate the prescribing practice as well to assure medication adherence among the pregnant population so as to ensure a healthy mother and a healthy baby.

SUMMARY

Summary

Pregnancy being considered as a physiological process requires special care. Pregnant women often suffer from one or the more pathological condition which requires immediate medical attention. Drug administration during pregnancy must be done cautiously as there are chances of the mother as well as the fetus to get harmed as a result of drug administration.

Therefore, it is necessary to conduct a drug prescribing analysis among the pregnant population to evaluate prescribing practice and also provide necessary feedback to the health care professional to improve their prescribing practices, which will reflect the health professionals's abilities to differentiate among the various choices of drugs and determine the drugs that will most benefit their patients.

The study being conducted describes the extent of ability shown by health care professionals in taking clinical judgment so as to provide better health care to the fetus as well as a mother. An extended approach to find the knowledge about drugs among the pregnant population by the use of a questionnaire showed that the majority of the subjects were adherent to the drugs prescribed and they had complete information about the drugs either from the doctor or from the pharmacist.

There is always a continued need of a prescribing pattern analysis in order to be updated about the new trends in prescribing as well to provide better patient care and also to educate and counsel the pregnant population regarding the advantages and disadvantages of drug use.

LIMITATIONS

Limitations

- The sample size of the pregnant women included in the study was less.
- Pregnant women visiting outpatient were not included.

FUTURE DIRECTIONS

Future Directions

- A Pharmacoeconomic study can be done.
- The prescribing pattern of drugs in pregnant women can be conducted for longer period.
- Further studies are required in different regions of India with diverse cultural and socioeconomic background so as to provide optimum healthcare to improve the overall health of the mother and baby in the community.
- Prescribers must be encouraged to adhere to the standard FDA guidelines for drugs that are safe during pregnancy for better antenatal care.
- Educational Programs on prescribing in pregnancy will be beneficial for both care providers and pregnant women.

BIBLIOGRAPHY

Bibliography

1. Puranik S.B, Khan I, Joshi M, Iram M. Safe drugs during pregnancy and Lactation. RGUHS journal of Pharmaceutical Science-January-2013 Mar; 3(1):21-31.
- 2.Zaki N.M,Albarraque A A. Use, attitudes and knowledge of medications among pregnant women: A Saudi study. Saudi Pharmaceutical Journal-2014 22, 419-28.
3. Reddy B S,Patil N R,HinchageriS,Kamal S. Assessing the pattern of drug use among pregnant women and evaluating the impact of counseling on medication adherence among them.International Research Journal of Pharmacy-IRJP-2011 Aug; 2(8) 148-53.
- 4.Pereira LM P, Nayak BS, Lateef H A, Matmungal V, Mendes K , Persad S, Ramnath G, Bekele I, Ramsewak S. Drug Utilization Patterns in Pregnant Women A case study at the Mount Hope Women's Hospital in Trinidad, West Indies. West Indian Med J- 2010; 59 (5): 561-66.
5. Rathod AM, Rathod RM, Jha RK, Gupta VK, Tabish A, Diptendu S. Prescribing trends in antenatal care at a tertiary level teaching hospital of vidharba region. Research journal of Pharmaceutical, Biological and chemical science-2010 July September; 3(3):865-72.
- 6.Rohra D K, Das N, Azam S I, Solangi N A, Memon Z, Shaikh A M, and Khan N H. Drug prescribing pattern during pregnancy in the tertiary care hospitals of Pakistan: a cross sectional study. Biomed central- 2008 July; 8:1-5.
- 7.Agarwal M,Nayeem M, Safhi M M, Makeen H A, Sumaily J M, Gupta N. Prescribing pattern of drugs in the department of obstetrics and gynecology in expecting mothers in jazan region, KSA.International Journal of Pharmacy and Pharmaceutical Sciences.Vol 6, Issue 1, 2014; 658-61.
- 8.Priya P.P,Rajesh K, Reddy K. P, Devi V. R.Pattern of drug use in pregnant women and evaluating the effect of supplements on growth of fetus. International journal of pharmacy and pharmaceutical science-2013 Oct; 5(4):651-54.

Bibliography

9. Kurushee N I,Dhande P P. Awareness of mothers and doctors about drug utilization pattern for illnesses encountered during pregnancy. Journal of clinical and diagnostic research-2013 Nov; 7(11):2470-474.
- 10.Inamdar I.F,Aswar N. R,Sonkar V.K,Doibale M. K.Drug utilization pattern during pregnancy, Indian Medical Gazette-2012 August; 305-11.
11. Gadisa A D,Guyo A W.Drug prescribing pattern and its potential fetal harm among pregnant women in Bishoftu General Hospital,Oromia regional state, Ethiopia.European journal of pharmaceutical and medical research-2014; 1(1):13-34.
12. Jayanthi M.K, Sushma Naidu V. Drug utilization pattern and pharmacoeconomic study in pediatric dentistry at a tertiary hospital.Int J Pharm PharmSci, 6(2):70-2.
13. Thaniyath F, Hafeez F, Sultana H, HussainMd A. Prescription pattern of drug in pregnancy: A review. International Research Journal of pharmacy-2015; 6(7):403-06.
- 14.Kelsey J.J, Buck M.L.Comprehensive Pharmacy Review 7th edition. Lippincott Williams and Wilkins; Chapter 37, Drug Use in Special Patient Population: Pediatric, Pregnant, andGeriatric 760-68.
15. Stephansson O,Granath F, SvenssonT, HaglundB, EkbomA,KielerH.Drug use during pregnancy in Sweden-assessed by the prescribed drug register and medical birth register. Dove press journal-2011 Jan; 3:43-50.
16. Gawde S R,Bhide S. S, Patel T. C, Chauhan A. R, Mayadeo N. M,SawardekarS. B.Drug prescription pattern in pregnant women attending antenatal outpatient department of a tertiary hospital. British journal of pharmaceutical research- 2011 December; 3(1):1-12.
17. Joshi H,Patel S, Patel K, Patel V. Drug use pattern during pregnancy: a prospective study at a tertiary care teaching hospital.NHL journal of medical science- 2012 July;1(1):14-17.

Bibliography

18. Daw J R, Mintzes B, Law M R, Hanley G E, Morgan S G. Prescription drug use in pregnancy retrospective population based study in British Columbia, Canada (2001-2006). Elsevier HS journals- 2011 January; 34(1):239-48.
19. Negasa M, Tigabu B M. Drug prescribing pattern among pregnant mothers attending obstetrics and gynecology department in Hiwot Fana specialized teaching hospital Ethiopia. Archives of Pharmacy practice- 2014 April June; 5(2).
20. Olesen C, Sorensen H T, Berg L J, Olsen J, Steffensen F H. Prescribing during pregnancy and lactation with reference to the Swedish classification system. Acta Obstet Gynecol Scand 1999; 78:686-69.
21. Bakker M K, Jentink J, Vroom F, Van Den Berg PB, De Walle HEK, Van Den Berg LTW. Drug prescription pattern before, during and after pregnancy for chronic, occasional and pregnancy related drugs in the Netherlands. An international journal of Obstetrics and gynecology- 2006 February; 113:559-68.
22. Kumarajit S, Manjunath GN, Dhananjaya BS, Lohit K. Prescription pattern of drugs during pregnancy in tertiary care centre: A retrospective study. Journal of International Medicine and Dentistry-2015; 2(1):30-35.
23. Ilyaz Md, Dr. Roya Rozati, Hafeez F, Tahniyath F, Sultana H, Hussain Md. A. Drug utilization pattern in pregnancy- a scope for improvement in the current prescribing practices. International Journal of Pharmacy-2014; 4(4):156-67.
24. Bhavya E, Sankaravadi V. T, Vivekanandan K. An Epidemiological Study on Drug Use in Pregnancy. Current Pharma Research-2010 October-December; 1(1):38-40.

Bibliography

25. Mohammed M A, Ahmed J H, Bushra A W, Aljadhey H S, Medications use among pregnant women in Ethiopia: A cross sectional Study. Journal of Applied Pharmaceutical Science-2013 April; 3 (04): 116-123.

ANNEXURE



Sri Adichunchanagiri College of Pharmacy
Department of Clinical Pharmacy
Adichunchanagiri Hospital & Research Centre, B G Nagara– 571448

PATIENT CONSENT FORM

I have read / been briefed on **“DRUG PRESCRIBING PATTERN AMONG PREGNANT WOMEN IN OBSTETRICS AND GYNAECOLOGY DEPARTMENT IN A RURAL TERTIARY CARE TEACHING HOSPITAL”** and I voluntarily agree to participate in the project. I understand that participation in this study may or may not benefit me. Its general purpose, potential benefits, possible hazards, and inconveniences have been explained to me up to my satisfaction. I have the option to withdraw from the study at any stage. I hereby giving my consent for this study.

Name of the volunteer / patient

Signature or thumb impression of Patient

Place:

Date:

Signature of Investigator

ANNEXURE - II

॥ Jai Sri Gurudev ॥



Sri Adichunchanagiri College of Pharmacy
Department of Clinical Pharmacy
Adichunchanagiri Hospital & Research Centre, B G Nagara– 571448

**DRUG PRESCRIBING PATTERN AMONG PREGNANT WOMEN IN OBSTETRICS AND GYNAECOLOGY
DEPARTMENT IN A RURAL TERTIARY CARE TEACHING HOSPITAL**

PATIENT DEMOGRAPHIC DETAILS:

Name: Age: Sex: Weight: Height: BMI:

IP No: Unit: DOA: DOD:

Literacy status:

☐ Not Educated ☐ Primary Education ☐ Secondary Education ☐ Tertiary Education

Gravida

☐ Primigravida ☐ Secundigravida ☐ Multigravida

Trimester

☐ First ☐ Second ☐ Third

Monthly Income

☐ <5000 ☐ 5000-10,000 ☐ 10,001- 30,000 ☐ >30,000
Employment status ☐ Employed ☐ UnEmployed

Social history :

Total number of days stayed in the hospital:.....

Medical History:

Medication History

Co-Morbidities:

Complaints on Admission:

PHYSICAL EXAMINATION:

VITAL SIGNS: BP mmHg, PR: bpm, RR: cpm, Temp: °F.

INVESTIGATIONS:

| ROUTINE BIOCHEMICAL INVESTIGATIONS | | | HAEMATOLOGY: | |
|------------------------------------|----------|----------|--------------|---------|
| Urea: | TChol : | T. Prot: | RBC : | ESR: |
| S.Cr : | TGs : | Alb: | WBC: | Hb: |
| Na+: | LDL: | Glob: | N: | PCV: |
| K+: | VLDL: | AST: | L: | MCV: |
| Cl: | HDL: | ALT: | M: | MCH: |
| RBS: | D Bili: | ALP: | E: | MCHC: |
| FBS: | C: Bili: | T Bili: | B: | T.C: |
| PPBS: | | | Platel: | Retics: |

| URINE ANALYSIS | | |
|----------------|------------|-----------|
| pH: | WBC: | Crystals: |
| Protein: | RBC: | Casts: |
| Sugars: | EP. Cells: | Blood: |

FINAL DIAGNOSIS:.....

Any pharmaceutical intervention observed: Yes/ No if Yes (Description)

.....

DRUG TREATMENT CHART:

| SL NO | DRUG WITH DOSE & ROUTE | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | PREG NANC Y CATE GORY | PROGRESS CHART |
|-----------------------|------------------------|------------|---|---|---|-------------------|---|---|---|-----------------------|----------------|
| | GENERIC NAME | BRAND NAME | | | | | | | | | |
| | | | | | | | | | | | |
| DISCHARGE MEDICATIONS | | | | | | FOLLOW UP /REVIEW | | | | | |



Adichunchanagiri Institute of Medical Sciences

(Recognised by Medical Council of India, New Delhi, General Medical Council,
London (U.K.) & Affiliated to Rajiv Gandhi University of Health Sciences, Karnataka)



No. AIMS/IEC/1249/2015-16

Date: 24-08-2015

CERTIFICATE

This is to certify that the M.Pharm research project titled "Drug prescribing pattern among pregnant women in obstetrics and gynaecology department in a rural tertiary care teaching hospital" to be conducted by the research scholars Ms Liya Elsa Abraham (Reg no 14PR005) under the guidance of Mr B P Satish Kumar, Associate Professor, Department of Pharmacy practice, Sri Adichunchanagiri College of Pharmacy has been discussed and approved by the Institutional Ethical Committee, Adichunchanagiri Institute of Medical Sciences, BG Nagara, Mandya dist., Karnataka - 571448 in the meeting held on 24th August, 2015.

Member Secretary
IEC, AIMS, BG Nagara
PRINCIPAL
Adichunchanagiri Institute of Medical Sciences
B.G. NAGARA-571448, Nagamangala Taluk
Mandya District, Karnataka State
INDIA

Chairperson
IEC, AIMS, BG Nagara

DIRECTOR
Adichunchanagiri Biotechnology
& Cancer Research Institute.
B. G. Nagar-571 448
Nagamangala Ta. Mandya Dist

Balagangadharanatha Nagara - 571 448, Nagamangala Taluk, Mandya District, Karnataka, INDIA

☎ : College : 08234 - 287433, 287436, Fax : 08234 - 287242, 287055
e-mail : 123aims@gmail.com Website : www.bgsaims.com

“ಜೈ ಶ್ರೀ ಗುರುದೇವ್”

ಶ್ರೀ ಆದಿಚುಂಚನಗಿರಿ ಔಷಧ ವಿಜ್ಞಾನ ಮಹಾವಿದ್ಯಾಲಯ
ಕ್ಲಿನಿಕಲ್ ಫಾರ್ಮಸಿ ವಿಭಾಗ
ಶ್ರೀ ಆದಿಚುಂಚನಗಿರಿ ಆಸ್ಪತ್ರೆ ಮತ್ತು ಸಂಶೋಧನಾ ಕೇಂದ್ರ
ಬಿ.ಜಿ.ನಗರ-571448.

ರೋಗಿಯ ಸಮ್ಮತಿ ಪತ್ರ

ನಾನು ಈ ಕೆಳಗಿನ ಅಧ್ಯಯನದ ಬಗ್ಗೆ ಒದಿರುತ್ತೇನೆ ಅಥವಾ ಅಧ್ಯಯನಕಾರರಿಂದ ತಿಳಿದುಕೊಂಡಿರುತ್ತೇನೆ. ಗ್ರಾಮೀಣ ತೃತೀಯ ದರ್ಜೆ ಆರೈಕೆ ಭೋದನಾ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ನಡೆಸಿರುವ “ಸ್ತ್ರೀರೋಗ ವಿಜ್ಞಾನ ವಿಭಾಗದ ಪ್ರಸವ ಶಾಸ್ತ್ರದಲ್ಲಿ ಗರ್ಭಿಣೀ ಸ್ತ್ರೀಯರು ಉಪಯೋಗಿಸಿರುವ ಔಷಧಗಳ ಬಗ್ಗೆ” ಈ ಒಂದು ಅಧ್ಯಯನದಿಂದ ತಿಳಿದು ಸ್ವ-ಇಚ್ಛೆಯಿಂದ ಕಾರ್ಯಕ್ರಮದಲ್ಲಿ ಭಾಗವಹಿಸಿರುತ್ತೇನೆ. ಇದರಿಂದ ನನಗೆ ಉಪಯೋಗ ಇದೆ / ಇಲ್ಲವೆಂದು ನಾನು ತಿಳಿದಿರುತ್ತೇನೆ. ಈ ಕಾರ್ಯಕ್ರಮದ ಅನುಕೂಲ ಮತ್ತು ಅನಾನುಕೂಲಗಳ ಬಗ್ಗೆ ನನ್ನ ವಿವೇಚನೆಗೆ ಅರ್ಥವಾಗುವಂತೆ ತಿಳಿಸಿರುತ್ತಾರೆ. ಈ ಕಾರ್ಯಕ್ರಮದಿಂದ ನಾನು ಯಾವ ಕ್ಷಣದಲ್ಲೂ ಹೊರನಡೆಯಬಹುದೆಂದು ತಿಳಿದು ನನ್ನ ಸಮ್ಮತಿಯನ್ನು ನೀಡಿರುತ್ತೇನೆ.

ರೋಗಿಯ ಹೆಸರು:

ರೋಗಿಯ ಸಹಿ/ಹೆಬ್ಬರಳಿನ ಗುರುತು

ಸ್ಥಳ:

ದಿನಾಂಕ:

ಶ್ರೀ ಆದಿಚುಂಚನಗಿರಿ ಔಷಧ ವಿಜ್ಞಾನ ಮಹಾವಿದ್ಯಾಲಯ
ಕ್ಲಿನಿಕಲ್ ಫಾರ್ಮಸಿ ವಿಭಾಗ
ಶ್ರೀ ಆದಿಚುಂಚನಗಿರಿ ಆಸ್ಪತ್ರೆ ಮತ್ತು ಸಂಶೋಧನಾ ಕೇಂದ್ರ
ಬಿ.ಜಿ.ನಗರ-571448.

1) ವೈದ್ಯರು ಔಷಧ ಚೀಟಿಯನ್ನು ವಿತರಿಸುವಾಗ ಸಂಪೂರ್ಣ ವಿವರವನ್ನು ತಿಳಿಸಿದ್ದಾರೆಯೇ ?
ಹೌದು ☐ ಇಲ್ಲ ☐ ಕೆಲವು ಸಲ (ಆಗಾಗ್ಗೆ) ☐

2) ವೈದ್ಯರು ಕೊಟ್ಟಿರುವ ಸೂಚನೆಗಳನ್ನು ಅನುಸರಿಸುತ್ತಿದ್ದೀರಾ ?
ಹೌದು ☐ ಇಲ್ಲ ☐ ಕೆಲವು ಸಲ (ಆಗಾಗ್ಗೆ) ☐

3) ನೀವು ನಿಮ್ಮ ವೈದ್ಯರನ್ನು ನಿಯಮಿತವಾಗಿ ಭೇಟಿಯಾಗುತ್ತಿದ್ದೀರಾ ?
ಹೌದು ☐ ಇಲ್ಲ ☐ ಕೆಲವು ಸಲ (ಆಗಾಗ್ಗೆ) ☐

4) ಔಷಧಗಳ ಬಗ್ಗೆ ನಿಮಗೆ ಯಾರು ಮಾಹಿತಿಗಳನ್ನು ನೀಡುತ್ತಿದ್ದಾರೆ ?
ಔಷಧ ತಜ್ಞ ☐ ಸ್ತ್ರೀರೋಗ ತಜ್ಞರು ☐ ಮಾಧ್ಯಮ ☐ ಇತರರು ☐

5) ಔಷಧ ಚೀಟಿ ರಹಿತ ಔಷಧಿಗಳನ್ನು ನಿಮ್ಮ ಗರ್ಭಿಣಾವಸ್ಥೆಯಲ್ಲಿ ತೆಗೆದುಕೊಂಡಿದ್ದೀರಾ ?
ಹೌದು ☐ ಇಲ್ಲ ☐

ಹೌದು ಎಂದಾದರೆ, ಔಷಧಗಳ ವಿವರ

6) ನಿಮ್ಮ ಗರ್ಭಿಣಾವಸ್ಥೆಯಲ್ಲಿ ಯಾವುದಾದರೂ ಪ್ರಾಕೃತಿಕ ಔಷಧಿಗಳ ಮೊರೆ ಹೋಗಿದ್ದೀರಾ ?
ಹೌದು ☐ ಇಲ್ಲ ☐
ಹೌದು ಎಂದಾದರೆ, ಔಷಧಗಳ ವಿವರ

7) ಔಷಧಿಗಳ ಅಪಾಯಗಳ ಬಗ್ಗೆ ನಿಮಗೆ ತಿಳುವಳಿಕೆ ಇದೆಯೇ ?

ತಾಯಿಗೆ ತೊಂದರೆಯಾಗುವ ಸಂಭವ ☐
ಮಗುವಿಗೆ ತೊಂದರೆಯಾಗುವ ಸಂಭವ ☐
ತಾಯಿ ಮತ್ತು ಮಗುವಿಗೆ ಹಾನಿಯಾಗುವ ಸಂಭವ ☐
ಗೊತ್ತಿಲ್ಲ ☐

8) ನೀವು ಉಪಯೋಗಿಸುವ ಔಷಧಿಗಳನ್ನು ಹೇಗೆ ನೆನಪಿನಲ್ಲಿಟ್ಟುಕೊಳ್ಳುತ್ತೀರಿ ?
ಬಣ್ಣ ☐ ಆಕಾರ ☐ ಬೇರೆಯವರ ಸಹಾಯದಿಂದ ☐

9) ನಿಮಗೆ ನಿಮ್ಮ ಔಷಧಿಗಳ ಪ್ರಯೋಜನಗಳ ಬಗ್ಗೆ ತಿಳಿದಿದೆಯೇ ?
ಹೌದು ☐ ಇಲ್ಲ ☐

10) ನೀವು ತೆಗೆದುಕೊಳ್ಳುವ ಔಷಧಿಗಳು ನಿಮಗೆ ಯಾವುದಾದರೂ ಅಡ್ಡ ಪರಿಣಾಮವನ್ನು ಬೀರುತ್ತಿದೆ ಎಮದು ತಿಳಿದಿದೆಯೇ
ಹೌದು ☐ ಇಲ್ಲ ☐

ANNEXURE - V

॥ Jai Sri Gurudev ॥



Sri Adichunchanagiri College of Pharmacy
Department of Clinical Pharmacy
Adichunchanagiri Hospital & Research Centre, B G Nagara– 571448

**DRUG PRESCRIBING PATTERN AMONG PREGNANT WOMEN IN OBSTETRICS AND GYNAECOLOGY
DEPARTMENT IN A RURAL TERTIARY CARE TEACHING HOSPITAL**

1. During prescribing, did the doctor give you complete information about the prescribing drug

Yes ☐

No ☐

Sometimes ☐

2. Are you following the instructions from the prescriber

Yes ☐

No ☐

Sometimes ☐

3. Do you meet your doctor regularly for checkup

Yes ☐

No ☐

Sometimes ☐

4. Who gives you information about drugs

Pharmacist ☐

Gynaecologist ☐

Media ☐

others ☐

5. Do you take drugs without prescriptions during pregnancy

Yes ☐

No ☐

If yes, specify

6. Do you use natural remedies during pregnancy

Yes ☐

No ☐

If yes, specify

7. Knowledge about the risk associated with taking drugs

Harmful to mother ☐

Harmful to fetus ☐

Harmful to both ☐

Don't Know ☐

8. How do you remember to take your medication

Colour ☐

Size ☐

Help from others ☐

9. Do you think your current medication is benefiting you

Yes ☐

No ☐

10. Is there any side effect while taking these drugs

Yes ☐

No ☐

