



DRUG MONITORING AMONG PREECLAMPSIA & ECLAMPSIA PATIENTS ATTENDING INPATIENT DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

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Abstract : The aim of this study is to evaluate drug utilization in preeclampsia and eclampsia. A prospective observational study was conducted by department of pharmacy practice in collaboration with the department of obstetrics in Guntur Government Hospital, Guntur after taking permission from the Institutional Review Board. WHO basic indicators were used for studying the prescribing pattern of drugs. Out of the total prescriptions studied the most commonly prescribed antihypertensive was nifedipine, followed by labetalol and Magnesium sulphate. Majority drugs prescribed were from category B and C. Single drug therapy was prescribed in 70% patients. The use of fixed dose combinations was low. The incidence of single drugs therapy and two drugs was high. Irrational prescriptions were few. The present pattern of prescriptions can be improved by advocating rational drug prescription and awareness regarding safe use of drugs to the obstetricians.

KeyWords: Preeclampsia, Eclampsia, Hypertension, Obstetrics

INTRODUCTION

Maternal health gives importance because life of not only the mother but the child is also at stake. Pregnancy is a time of profound physiological changes in a woman's body. These unique changes during pregnancy challenge the clinicians in managing disease states in the selection of medications best suited to treat them. Maternal drug use during pregnancy may pose a teratogenicity risk to the foetus. However, avoiding all drugs during early pregnancy is unrealistic and may be dangerous to the health of the mother and indirectly to that of the foetus too. Pregnancy should not deter clinicians from providing their patients with appropriate management of their medical conditions; hence, prescribing in pregnancy is an unusual risk benefit situation¹.

Hypertensive disorders are one of the most common disorders in pregnancy. They are amongst the major cause of maternal and perinatal morbidity and mortality.

It complicates almost 10% of all pregnancies. Pregnancies complicated by hypertension are associated with increased risk of adverse fetal, neonatal and maternal outcomes, including preterm birth, intrauterine growth restriction (IUGR), perinatal death, acute renal or hepatic failure, antepartum haemorrhage, postpartum haemorrhage and maternal death.

Treating the hypertension does not alter the progression of disease. However it has been shown that early treatment decreases not only the frequency of hypertensive crisis, but also the rate of neonatal complications. Antihypertensive medications are mainly used to prevent or treat severe hypertension, to prolong pregnancy for as long as safely possible thereby maximizing the gestational age of the infant, and to minimize fetal exposure to medications that may have adverse effects. During pregnancy, the challenge is in deciding when to use antihypertensive medications, and what level of blood pressure to target. The antihypertensive drugs that may be used in pregnancy are methyldopa, beta blockers, calcium channel blockers and vasodilators. Methyldopa has been available for many years and is widely used. Literature supports the safety and efficacy of Nifedipine and Atenolol used in essential hypertension in pregnancy. It is important to realize that inappropriate use of drugs represent a potential hazard to the patients and an unnecessary expense⁶. This necessitates a periodic review of pattern of drug utilization to ensure safe and effective treatment. A number of drugs in various combinations are generally used for effective long-term management of hypertension. Therefore, drug utilization studies, which evaluate, analyze the medical, social and economic outcomes of the drug therapy, are more meaningful and observe the prescribing attitude of physicians with the aim to provide drugs rationally⁷. The World Health Organization (WHO) in 1997 defined drug utilization as the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences⁸. Accordingly, there is need to survey the pattern of usage of antihypertensive drugs, to see if the current usage is rational, effective and tolerated and in concordance with current guidelines for treatment of hypertension⁹.

Drug utilization studies previously have been conducted mostly for marketing purposes and data was not available for academic purposes to health care professionals. The virtual explosion in the marketing of new drugs, the wide variations in the patterns and extent of drug prescribing, the growing concern about ADRs and cost of drugs has led the health professionals to conduct drug utilization studies. They create a sound socio-medical health economic basis for health care decision making. World Health Organization specifies drug use indicators for adoption in drug utilization studies.

Today, drug utilization studies have widened the areas to newer applications of drugs, individual differences of drug responses, patient counseling, pharmaco-economic aspects, social aspects of drug use and misuse, correlation between clinical trials and clinical practice, formulations of better therapeutic guidelines, discovery of new indications, new drug discovery etc.

Nowadays drug utilization studies (DUS) are used as potential tool in the evaluation of healthcare systems. Drug utilization studies are powerful exploratory tools to ascertain the role of drugs in society.

The boost in the marketing of new drugs, wide variations in the pattern of drug prescribing and consumption, growing concern about the delayed adverse effects, increasing concerns regarding the cost of drugs and volume of prescription, all contribute to the increasing importance of DUS. Studies on drug utilization focus on the factors related to prescribing, dispensing, and administering of medication, its beneficial or adverse effects etc.

DRUG USE INDICATORS:

WHO specifies drug use indicators^{16, 17} for adoption in drug utilization studies. These indicators help us to know the shortcomings in prescription writing and allow improving the performance periodically.

Core indicators

(i) Prescribing indicators

- (a) Average number of drugs per encounter
- (b) Percentage of drugs prescribed by generic name
- (c) Percentage of encounters with an antibiotic prescribed.
- (d) Percentage of encounters with an injection prescribed
- (e) Percentage of drugs prescribed from essential drug list

(ii) Patient Care Indicators

- (a) Average consultation time
- (b) Average dispensing time
- (c) Percentage of drugs actually dispensed
- (d) Patients' knowledge of correct dosage

(iii) Facility indicators

- (a) Availability of copy of EDL: By stating yes (or) no.
- (b) Availability of key drugs

Complementary indicators

- (a) Percentage of patients treated without drugs
- (b) Average drug cost per encounter
- (c) Percentage of drug costs spent on injection

AIM: The aim of the study is to evaluate the drug utilization in preeclampsia and eclampsia.

OBJECTIVES:

- To assess the drug utilization.
- Average no of drugs prescribed per prescription.

MATERIAL & METHODS:

The study was approved by the institutional scientific committee.

STUDY TYPE: Prospective, Observational Study.

DURATION OF STUDY: 6 months, 1st January 2023 to 30th June 2023.

PLACE OF STUDY: A Secondary care hospital, Hyderabad, Telangana

SAMPLE SIZE: 335 inpatient antenatal patients.

INCLUSION CRITERIA: Pregnant women presenting with complaints of Preeclampsia and eclampsia with other co morbidities to antenatal and postnatal units (Obstetrics).

EXCLUSION CRITERIA

- Antenatal Patients with
 - ✓ Anemia
 - ✓ Gestational Diabetes mellitus
 - ✓ Rheumatic heart disease and
 - ✓ Ectopic pregnancy
 - ✓ Patients who are not willing will be excluded in the study.



RESULTS:

AGE WISE DISTRIBUTION

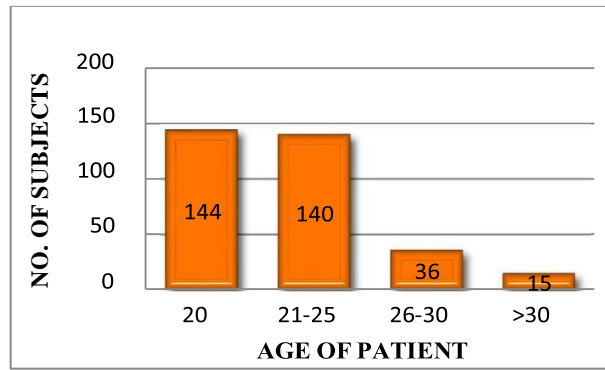


Figure 1: Age Wise Distribution among the Subjects

Total distribution of patients with respect to age group shows that highest number of patients was found in the age less than and equal to 20 years (42.9 %) and least was above 30 years age group (4.4%). The mean maternal age at delivery was 22.53 years

DIAGNOSIS

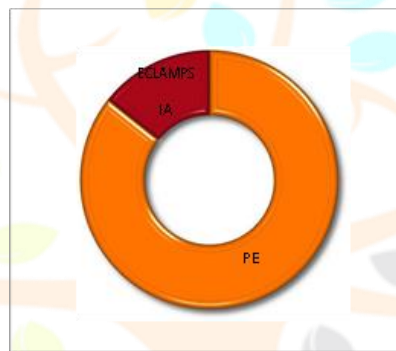


Figure 2 Diagnosis among Subjects

Of the total subjects, patients were diagnosed more (86%) with preeclampsia and eclampsia was seen in 14% of patients

UTILIZATION PATTERN OF ANTIHYPERTENSIVE DRUGS IN PREGNANCY

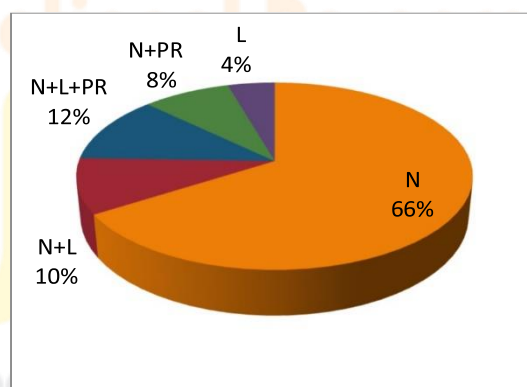


Figure 3 Treatment Wise Choice of Drug

Overall 236 (70.4%) patients were treated with a single antihypertensive drug, and 99 (29.5%) patients were treated with various antihypertensive drug combinations

THE PATTERN OF USE OF ANTIHYPERTENSIVE DRUGS IN PATIENT TREATED WITH MONOTHERAPY

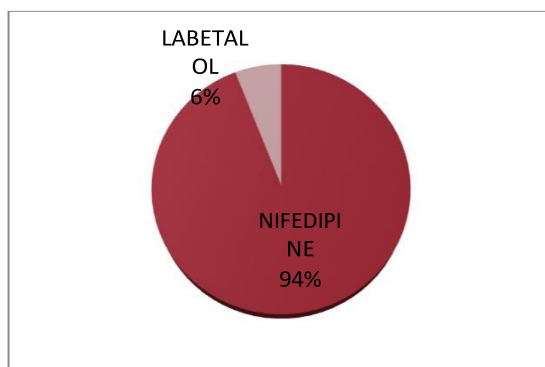


Figure 4 Treatment with monotherapy

shows the details of patients, who were treated with a single antihypertensive drug. 14(6%) patients were treated with adrenergic receptor locking agents and 221 (94%) patients were treated with Calcium Channel blockers.

THE PATTERN OF ANTIHYPERTENSIVE DRUGS INPATIENT TREATED WITH COMBINATION THERAPY

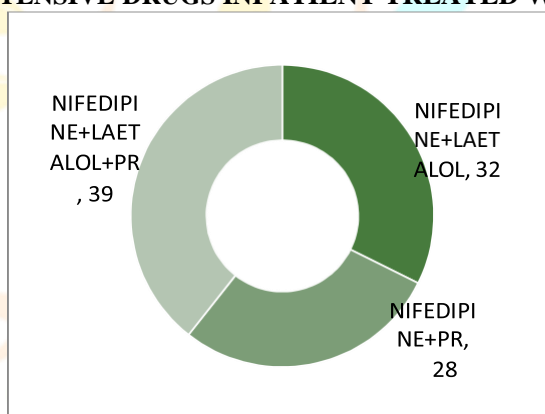


Figure 5 Treatment with combination therapy

THE PATTERN OF PRITCHARD'S TREATMENT

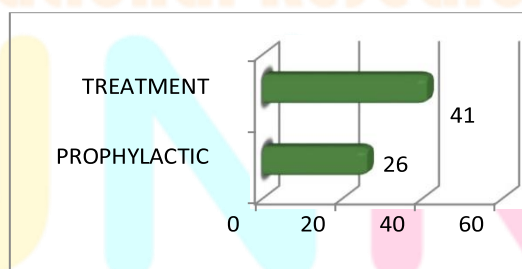


Figure 6 Level of PR Regimen Usage

Out of 67pritchard's regimens, 26 regimens(38.8%) were used to prevent complications and 41 regimens (61.1%)were used to control imminent symptoms and seizure episodes

DETAILS OF DRUG USE INDICATORS

INDICATORS	DATA
<i>Core indicators</i>	
Average drugs prescribed per prescription	8.9
Average number of antihypertensives per prescription	1.41
Prescriptions by generic name	86%
On essential list	73%
<i>Facility indicators</i>	
Availability of EDL	YES
Key drugs available	YES (100%)

DISCUSSION:

Rational drug use in pregnancy requires balancing of benefits and the potential risks associated with the use of drugs¹⁸. One of the most common ailments in pregnancy which requires drug therapy is Pregnancy Induced Hypertension (PIH). The most commonly prescribed Antihypertensives were nifedipine and labetalol but Methyldopa is the safest antihypertensive in pregnancy followed by Nifedipine.

Age has an important influence on the incidence of hypertensive disorders of pregnancy. Young primigravidae under 20 years and all patients over 30 years have an increased chance of hypertension¹⁹. In our study highest incidence (42.9%) of the hypertensive disorders occurred among those aged 18 to 20 years as Manjusha Sajith et al. This could be because the majority of conceptions take place in this age group in our country. Preeclampsia is more frequent in patients younger than 21 years of age and in older than 35

Monotherapy and combination therapy were used in our hospital for treating hypertension during pregnancies. The most commonly prescribed antihypertensive agent was Nifedipine, Labetalol. The use of combination antihypertensive pharmacotherapy suggests increased Severity of illness where optimal BP control cannot be achieved on monotherapy. The present study reveals that calcium channel blocker (Nifedipine) was mostly prescribed single drug therapy. In the present study, two drug combinations were mostly prescribed (18%) followed by three drug combinations (11.6%). In the present study also most of the cases of PIH were treated using Nifedipine. Nifedipine was the commonest prescribed antihypertensive as monotherapy as well as in combination therapy. Similarly in a study by studies from Ray JG et.al showed that Nifedipine (47.7%) was prescribed more frequently than Methyldopa (27.7%), In contrast to this, Cvijic M et.al, Methyldopa was most commonly prescribed antihypertensive drugs in 27.8% of patients. This shows that utilization pattern differs from hospitals, prescribers and among countries also.

CONCLUSION:

Hypertension in pregnancy is one of the most common disorders encountered in pregnancy. Early diagnosis and treatment through regular antenatal check-up is a key factor to prevent PIH and its complications. Use of drugs was evaluated by using WHO drug use indicators and periodic evaluation may increase the rationale of drug use.

The need of drug utilization evaluation is necessary to improve quality of life of both mother and baby by avoiding unnecessary use of drugs. Prescribing errors, administration errors, all the other related errors were avoided due to strict follow-up by the pharmacist. Along with physicians, nurses & midwives, clinical pharmacist has a great role in management of pregnancy and child birth.

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