



MANAGEMENT OF HYPERTENSIVE DISORDERS OF PREGNANCY A RETROSPECTIVE COMPARATIVE STUDY

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ABSTRACT

Background: Hypertensive disorders of pregnancy (HDP) is one of the most important reasons for neonatal and maternal morbidity and mortality worldwide. This is the rationale for setting up the optimal available management protocols, especially at the tertiary level. **Objective:** The study was carried out to compare drug and clinical management trends of HDP in two consecutive years (2023–2024) in the "Queen Geraldine" Obstetrics & Gynecology University Hospital in Tirana, Albania. **Methods:** Retrospective comparative observational study on the basis of hospital and clinical records of 2023 and 2024. Data included are type and frequency of antihypertensive medications, time of delivery (preterm vs. term), and type of delivery (cesarean section vs. vaginal). Descriptive statistics and inferential tests (t-tests, chi-square) were utilized on SPSS v22 with the significance level of $p < 0.05$. **Results:** 217 HDP cases were examined (104 in 2023 and 113 in 2024). Methyldopa and Nifedipine were the most common medications used both years. The study finds that $MgSO_4$ was used more in 2024 (17% in 2023 vs. 24% in 2024; $p = 0.04$), which is an obvious indication of increased compliance with seizure prophylaxis guidelines. the most frequent mode of delivery for HDP cases Cesarean section remained (82% in 2023; 79% in 2024), although the drop was not statistically significant ($p = 0.19$). Premature delivery remained high (42% in 2023; 37% in 2024), representing the continued equipoising challenge between maternal and fetal risks in HDP. **Conclusions:** High prescription rates of Methyldopa and Nifedipine reinforce their status as first-line therapy in the management of HDP. Growth in the use of $MgSO_4$ is indicative of more guideline adherence. Though decreased, cesarean delivery is still the most prevalent method of delivery. These findings are a testament to the need for further optimization of guidelines for the treatment of HDP and unnecessary cesarean births with improved perinatal results.

KEYWORDS: Hypertensive pregnancy disorders; Antihypertensive medication; Cesarean delivery; Average hospital length of stay; Maternal outcomes.

INTRODUCTION

Hypertensive disorders of pregnancy (HDP) like chronic hypertension, gestational hypertension, preeclampsia, and eclampsia are one of the leading causes of maternal and perinatal morbidity and mortality worldwide. They complicates 3–10% of pregnancies in the world and is the cause of the majority of the maternal and neonatal complications such as preterm labor, placental abruption, and intrauterine growth restriction. HDP account for 10–15% of global maternal mortality.^[1,2] The situation is worse in low- and middle-income countries with limited access to quality antenatal care and early intervention HDP.^[3,4,5,8] Early diagnosis and treatment are critical in maximizing the outcome of the infant and the mother.^[6,7,9]

Effective management of HDP involves early detection, pharmacologic blood pressure control, prophylactic seizures as needed, and delivery at an optimal time to balance mother and fetus risks. Most common and advocated antihypertensives are Methyldopa, Labetalol, and Nifedipine, whereas Magnesium Sulfate ($MgSO_4$) is the first-line drug for seizure prophylaxis and treatment of severe preeclampsia and eclampsia.^[7,9,10]

The aim of this study is to contrast the management practices in a tertiary care unit over two years (2023 and 2024) regarding trends in drug utilization, delivery time, and mode of delivery, i.e., cesarean section rates. One should know these trends in order to optimize outcomes and confront global best practices.

MATERIALS AND METHODS

Study Design

This is a retrospective comparative observational study on HDP management for patients who delivered in 2023 and 2024.

Data Source

Data were obtained from clinical records and summarized into Excel spreadsheets with the following:

- Medications utilized and dosage in HDP management.
- Delivery modes and timing (term vs. preterm).
- Cesarean section rates among HDP patients by region.

Variables

- Independent Variables:** Year of delivery, drugs administered (Methyldopa, Nifedipine, MgSO₄, Atenolol, Enoxaparin), delivery time, method of delivery.
- Dependent Variables:** Cesarean section rate, preterm delivery, and drug pairs.

Statistical Analysis

Data were coded in Excel and analyzed using SPSS version 22. Descriptive statistics (frequencies, means,

percentages) were used for summary. The following statistical tests were used:

Chi-square test for comparing categories (e.g., medication use by year, types of deliveries).

Independent-sample t-test for means comparison (e.g., percentage differences).

A p-value < 0.05 was considered statistically significant.

RESULTS

1. Medication Use in HDP (2023 vs. 2024)

Sample sizes: 104 (2023), 113 (2024)

Medication usage (%):

Medication	2023 (%)	2024 (%)	p-value
Methyldopa	21	17	0.36
Nifedipine	21	20	0.87
MgSO ₄	17	24	0.04*
Atenolol	14	16	0.71
Enoxaparin	16	12	0.38
Combination ≥ 2	11	11	1.00

*Significant increase in MgSO₄ usage in 2024.

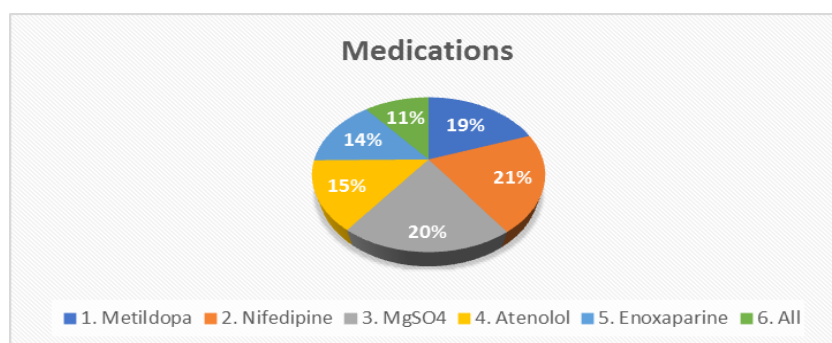


Fig. 1: Medication Used Distribution.

2. Timing and Mode of Delivery

Year	Number	Birth time %		Delivery Method %		
		Term	Preterm	Vaginal	C. Section	N.A.
Year 2023	104	58	42	16	82	2
Year 2024	113	63	37	12	79	9
Total	217	60	40	14	80	6

Cesarean Rate: 78.8% (2023) vs. 69.9% (2024), $p = 0.19$

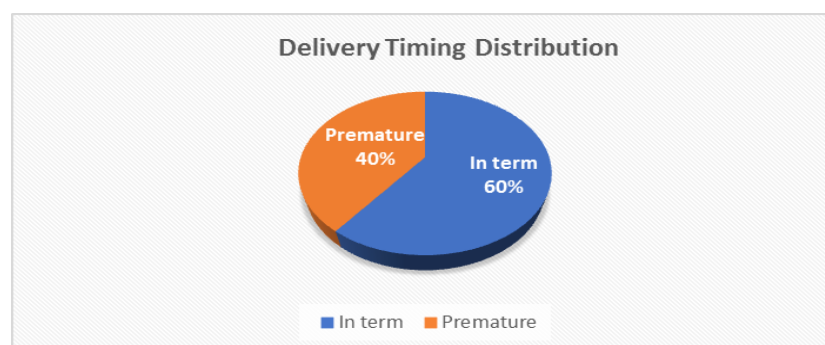


Fig. 2: Delivery Timing Distribution.

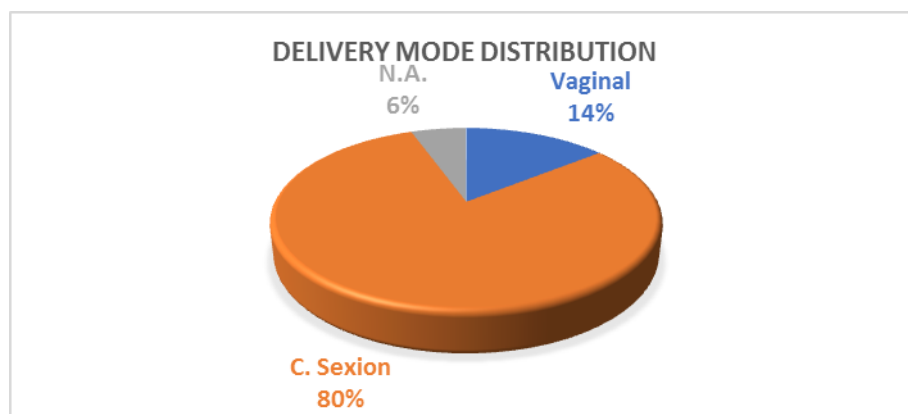
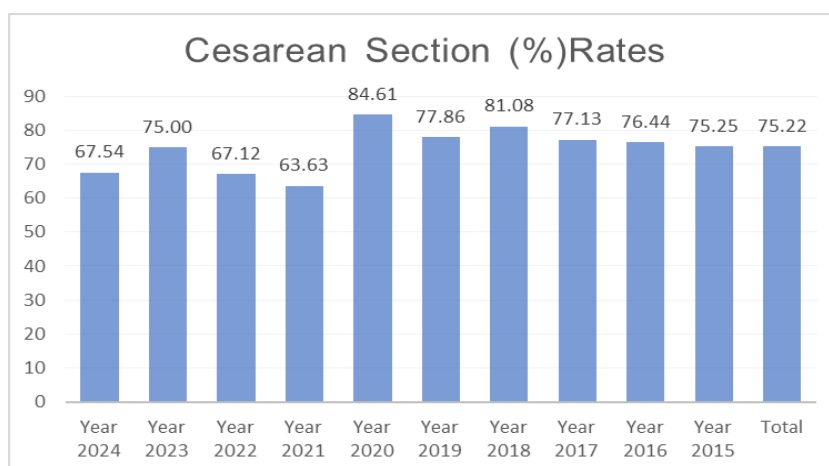


Fig. 3: Delivery Mode Distribution.

3. Cesarean Sections in the General Population

Year	Deliveries	HDP Prevalence (%)	C-Sections in HDP	% of HDP via C-section
2023	5608	2.07	87	75.0%
2024	5400	2.11	77	67.5%



DISCUSSION

The findings of the current retrospective analysis give a glimpse into the evolving patterns in the management of HDP. Certain important trends were noted from the findings.

Medication Use

The daily use of Methyldopa and Nifedipine makes them first-line medications in HDP management. Methyldopa is well tolerated in resource-poor regions due to its safety profile^[5,6,7], and Nifedipine offers ease of administration and rapid onset of action.^[9,10]

An increase in MgSO₄ utilization in 2024 ($p = 0.04$) is a welcome trend. It reflects either improved clinical adherence to seizure prophylaxis protocols or an increase in the incidence of severe preeclampsia. MgSO₄ is a life-saving drug in the prevention of eclampsia according to WHO and ACOG.^[1,2,3,4]

Delivery Trends

Cesarean section rates in HDP pregnancies were high, as they are across the globe, to minimize maternal and

perinatal risk. The extremely minimal decrease in 2024, which was not significant, may be due to more application of individual decision-making.

Preterm labor remains a perennial issue, as is the need to extend gestation without compromising fetal and maternal welfare.^[4,5,6] There is room for individualization of gestational length with outpatient surveillance protocols where appropriate.

Data Challenges

An increase in unclassified ("N.A.") deliveries in 2024 suggests probable shortfalls in record keeping. This is used here to highlight the importance of complete data entry in the maternity records for both quality audits and clinical research.

CONCLUSIONS

1. Methyldopa and Nifedipine remain the most frequent used drugs for HDP.
2. There was a distinguish increase in the utilization of MgSO₄ in 2024, perhaps reflecting improved protocol adherence or increased severity.

3. Cesarean delivery was the most frequent mode of delivery in HDP, though there was a non-significant decline.
4. Premature delivery rates remained high, suggesting the challenge of extending HDP pregnancies.

Recommendations

5. Enhance compliance with newer HDP management guidelines.
6. Conduct drug use trend and delivery outcome audits annually.
7. Refine clinical record keeping to promote evidence-based practice.
8. Promote safe vaginal delivery where possible to restrict cesarean deliveries.
9. Implement multidisciplinary care for HDP women.

Acknowledgments

NA.

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