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FREQUENCY OF PLACENTAL ABRUPTION AMONG PREGNANT INDIVIDUALS AFFECTED BY HYPERTENSIVE DISORDERS

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Abstract
Placental abruption is a medical condition characterized by the premature separation of the placenta from the uterine wall before the baby is delivered. Placental abruption remains a prevalent condition in the field of obstetrics, and it continues to pose a mystery as well. Despite the progress made in obstetrics, there are currently no dependable tests or biomarkers available to anticipate and preemptively address the occurrence of placental abruption, which can still be a daunting challenge for the medical team. Placental abruption represents a significant obstetric complication, carrying substantial risks for both maternal and fetal well-being. This research endeavor aims to explore the occurrence rate of placental abruption among pregnant individuals affected by hypertensive disorders. Conditions like preeclampsia and gestational hypertension are recognized as factors that elevate the chances of experiencing placental abruption. Gaining an understanding of the prevalence of this complication in hypertensive pregnancies assumes critical importance for timely detection and effective intervention. We conducted an extensive examination of medical records and obstetric outcomes within a sizable cohort of expectant mothers afflicted by hypertensive disorders. Our study outcomes provide valuable insights into the frequency of placental abruption in this specific demographic, thereby emphasizing the imperative for enhanced monitoring and improved care strategies to mitigate associated risks.

Keywords: Hypertensive disorders, pregnancy, placental abruption, and fetal health.

1. Introduction

Pregnancy-induced hypertension is identified by systolic blood pressure that reaches or surpasses 140 mm Hg and/or diastolic blood pressure that reaches or surpasses 90 mm Hg. Both elevated systolic and diastolic blood pressure values are critical for recognizing the presence of Hypertensive Disorders of Pregnancy (HDP). Pregnancy-induced hypertension (PIH) denotes elevated blood

pressure that develops during pregnancy, usually after the 20th week of gestation, in women who had previously exhibited normal blood pressure readings. [1,2]. This condition is also sometimes known as gestational hypertension or pregnancy-related hypertension. PIH is an important medical concern during pregnancy, as it can increase the risk of complications for both the mother and the unborn child [3–5]. It may require close monitoring and management by healthcare professionals to ensure the well-being of both mother and baby. Pregnancy-induced hypertension during pregnancy is generally classified into three categories [6]: gestational hypertension (characterized by high blood pressure without proteinuria), pre-eclampsia (involving high blood pressure with proteinuria), and eclampsia (which is pre-eclampsia accompanied by convulsions). Severe preeclampsia during pregnancy is characterized by systolic blood pressure equal to or exceeding 160 mm Hg, diastolic blood pressure equal to or exceeding 110 mm Hg, or both. According to the expert consensus of the Society of Obstetric and Gynecologists of Canada (SOGC), a single reading at these levels should be confirmed within 15 minutes to diagnose severe pregnancy-induced hypertension [7,8]. Eclampsia represents an advanced and severe manifestation of pregnancy-induced hypertension, wherein women suffering from eclampsia experience seizures as a consequence of this condition. Hypertensive disorders of pregnancy play a significant role in causing maternal and perinatal health complications and fatalities, making them substantial contributors to adverse outcomes [9]. Hypertension is responsible for around 15% of maternal fatalities, ranking as the second most prevalent cause of maternal mortality in the United States. Intense hypertension elevates the mother's susceptibility to heart attacks, cardiac failure, cerebral vascular accidents, and renal failure. Additionally, it places the fetus at greater risk of complications, including inadequate oxygen transfer through the placenta, fetal growth restriction, premature birth, placental abruption, stillbirth, and neonatal mortality. Hypertensive disorders constitute the most prevalent medical complications during pregnancy, with a reported occurrence ranging from 5% to 10%. According to the World Health Organization, it is estimated that at least one woman succumbs to complications related to hypertensive disorders of pregnancy every 7 minutes [10,11]. As per a population-based study conducted in South Africa, the occurrence of hypertensive disorders of pregnancy stood at 12%. Notably, hypertension disorder during pregnancy emerged as the leading cause of maternal mortality, contributing to 20.7% of maternal deaths. Placental abruption remains a prevalent condition in the field of obstetrics, presenting as an enigmatic challenge. Despite advancements in obstetric care, the absence of dependable tests or biomarkers for predicting and preventing placental abruption persists,

potentially causing considerable distress for the medical team involved. It poses distinct and substantial risks to both the mother and the baby. The occurrence of placental abruption varies significantly among different studies. For instance, in a study conducted by Hossain *et al*., the frequency of placental abruption was reported to be 1.6% in pregnant women with hypertensive disorders [12]. In a separate investigation conducted by Khattak *et al*., it was discovered that the incidence of placental abruption was as high as 98% among pregnant women with hypertensive disorders [13]. In Pakistan, particularly in the designated research areas, there is a lack of clear data regarding the prevalence of hypertensive disorders and the birth outcomes associated with these conditions among pregnant women receiving delivery services. Therefore, this study is being proposed to address this knowledge gap. Furthermore, previous research conducted within our local population has demonstrated significant variability, as indicated earlier. Consequently, I have devised a study with the aim of ascertaining the prevalence of placental abruption in pregnant women affected by hypertensive disorders within our specific local population. The results of my research will be instrumental in evaluating the true scope of this health issue within our local community. Hypertensive pregnancy disorders encompass various conditions, including preeclampsia/eclampsia, gestational hypertension, chronic hypertension, and preeclampsia occurring in conjunction with chronic hypertension [14]. Based on the results of the National High Blood Pressure Education Program (NHBPEP) Working Group Report on High Blood Pressure (BP) during Pregnancy, hypertension is identified in approximately 6-8% of pregnancies in the United States [15]. Hypertensive pregnancy disorders constitute the most prominent pregnancy-

related complications, playing a substantial role in maternal and perinatal health challenges and fatalities. The prevailing guidance for managing these disorders relies heavily on expert insights and observational investigations, with a scarcity of data derived from randomized controlled trials. The primary objective in managing hypertension during pregnancy is to avert maternal cerebrovascular and cardiac complications, safeguard the utero-placental and fetal blood flow, and minimize any potential harm to the fetus from medication toxicity. Treatment approaches can be categorized broadly into two main groups: managing acute hypertensive conditions during pregnancy, like preeclampsia/eclampsia, and managing chronic hypertension. While delivery is the definitive solution for managing acute hypertensive syndromes of pregnancy, in certain carefully chosen cases, particularly before the 32nd week of gestation, a strategy of expectant management with close monitoring might be considered appropriate. Ideally, women with chronic hypertension should undergo an evaluation before becoming pregnant [8,16]. This evaluation should concentrate on assessing the existence of damage of end-organ, exploring potential supplementary factors of hypertension (renal artery stenosis resulting from fibro-muscular dysplasia, primary hyper-aldosteronism, and pheo-chromocytoma), making essential medication modifications and offering guidance on the potential dangers linked to preeclampsia and unfavorable fetal results. Patients experiencing disorders of hypertensive pregnancy should receive a comprehensive care plan [17,18]. This plan should encompass prenatal counseling, regular pregnancy check-ups, timely delivery, suitable intra-partum monitoring care, and postpartum follow-up. Providing care for these individuals necessitates continuous counseling throughout the pregnancy journey, ensuring that the woman is well-informed about the potential risks to herself and her fetus, enabling her to make informed decisions at every stage of her pregnancy.

2. Material and Method

This research is done in the Department of Obstetrics and Gynaecology, Ayub Teaching Hospital, Abbottabad. Non-probability consecutive sampling is a data collection method used in this research and for statistical purposes. In this approach, we gather data by selecting participants or subjects in a sequential manner as they become available or meet specific criteria. The selected sample size was determined using the following formula:

$$n = \frac{z^2\, pd}{d} \qquad —$$

(i)Where “n” represents the desired sample size, which you want to calculate, “z” stands for the critical value from the standard normal distribution, often denoted as "z-score." It is chosen based on the desired level of confidence (e.g., 1.96 for a 95% confidence level) and is used to determine the margin of error. “P” represents the estimated proportion of the population that possesses the characteristic of interest. It's often based on prior knowledge or estimates and “q” is the complement of “p” and represents the proportion of the population that does not possess the characteristic of interest. So, q = 1 - p. The parameter “d” represents the desired margin of error or precision you want in your sample estimate. It indicates how close you want your sample estimate to be to the true population parameter. The inclusion criteria are considered to be;

Women aged 18-40 years having Parity 0-4 and Singleton pregnancy on ultrasound with Gestational age more than 20 weeks on LMP and the Hypertensive disorders as per operational definition. The Exclusion Criteria considered for this research are; History of placenta previa, History of trauma, H/o genital tumors, H/o genital infections, and H/o vulvo-vaginal varicosity. To control any BIAS, the exclusion criteria were strictly followed [19,20].

2.1. Data collection procedure and data analysis

Women meeting the inclusion criteria were enrolled in the study from the outpatient department of Obstetrics and gynecology at Ayub Teaching Hospital in Abbottabad. This was done following approval from the ethical committee and research department of CPSP. A comprehensive explanation of participation in the study was provided to each patient, and informed consent was

obtained, outlining the potential advantages of the study. Patients underwent a thorough assessment, which included a detailed medical history and clinical examination. Essential demographic information, such as age, parity, gestational age, and the presence of hypertensive disorders, was recorded. Ultrasound examinations were conducted for all women under the supervision of a consultant gynecologist with three years of post-fellowship experience. These ultrasounds aimed to diagnose Placental abruption based on the operational definition, and the findings were recorded by the researcher herself on a specifically designed data collection form. The data was subjected to analysis using the statistical analysis program SPSS, version 22. Frequencies and percentages were calculated for categorical variables such as age groups, hypertensive disorder, and placental abruption. Quantitative variables like age, gestational age, parity, and weight were described using mean ± SD (standard deviation). Stratification was performed based on age, gestational age, parity, and weight to examine their impact on the occurrence of Placental abruption. Subsequently, a post-stratification chi-square test was applied, with a significance level set at $p \leq 0.05$ to determine statistical significance.

Our goal is to ascertain the prevalence or frequency of placental abruption among pregnant women who have hypertensive disorders.

3. Results and Discussion

Before going into the results, we focus on the measurement of some basic parameters of a hypertensive pregnant woman.

3.1. Measurement of Hypertension in Pre-eclamptic Patients in Pregnancy

The NHBPEP Working Group Report on High Blood Pressure in Pregnancy and the guidelines set forth by the American College of Obstetricians and Gynecologists (ACOG) advocate for intervention in cases of preeclampsia when the diastolic blood pressure (DBP) remains consistently elevated beyond 105 up to 110 mm Hg [21,22]. Nonetheless, there is presently no established guideline concerning a precise systolic blood pressure (SBP) level at which treatment should commence. The consensus among majority of experts is that pharmacological treatment should commence when blood pressure levels approach 150/100 mm Hg. The objective is to prevent cerebral and cardiovascular events in the mother. In cases where a woman presents with mild preeclampsia (with a diastolic blood pressure of less than 100 mm Hg) and normal laboratory results, except for mild proteinuria, outpatient management can be considered appropriate. However, this approach should include frequent outpatient check-ups and favorable fetal non- stress testing (NST). The schedule for formal ultrasound assessments varies according to the patient's clinical condition and is determined by the obstetrician's judgment. In cases of severe preeclampsia where expectant management is being carried out within a hospital setting, there may be a need for daily ultrasounds to monitor fetal well-being. Although treating hypertension during pregnancy can enhance the maternal risk factors and, as a result, postpone the necessity for delivery, it's essential to note that it doesn't provide a cure for preeclampsia, nor does it halt the progression of preeclampsia itself. The diagnosis of severe preeclampsia is based on the presence of one or more of the following criteria: severe hypertension (defined as a diastolic blood pressure
> 100 mm Hg), significant proteinuria exceeding 5 g in a 24-hour urine collection or being greater than 3^+ on two random urine samples taken four hours apart, reduced urine output (oliguria), cerebral or visual abnormalities, pulmonary swelling, discomfort in the upper abdomen or the right upper abdominal region, compromised liver function, low platelet count (thrombocytopenia), or limited fetal-growth. Delivery remains the sole conclusive remedy for preeclampsia. In situations where prompt blood pressure control is required, particularly when delivery is predicted within 48 hours, intravenous medications like labetalol or hydralazine are the preferred options. If immediate delivery is not on the horizon, oral medications may be considered, and we will delve into the medication choices in more detail below. Eclampsia can develop in as many as 20% of cases even when there is no preceding gestational hypertension or preeclampsia. Research has shown that administering magnesium sulfate can lower the risk of eclampsia and maternal complications

mortality without clear indications of substantial harm to either the mother or the baby [23,24]. Hence, it is recommended to administer intravenous magnesium sulfate to prevent seizures, both during labor and for 24 hours post-delivery. For women with impaired renal function (as magnesium is eliminated by the kidneys), the rate of continuous infusion should be reduced, though not the initial loading dose. Additionally, it is advisable to monitor serum magnesium levels every 1-2 hours in these cases, unlike women with regular kidney function, who can be monitored at intervals of 4-6 hours.

3.2. Timing of Delivery

Determination of when to proceed with delivery should be based on a thorough evaluation of the potential risks to both the mother and fetus. In carefully chosen cases, particularly those occurring before 32 weeks of gestation, it may be advisable to delay delivery to permit for the maturation of the fetal respiratory system. This strategy may be appropriate for individuals experiencing mild preeclampsia, particularly those with a diastolic blood pressure below 100 mm Hg and no indications of cerebral issues, HELLP syndrome, or substantial proteinuria exceeding 1 g in a 24-hour timeframe. For women experiencing severe preeclampsia before reaching the 34-week gestation mark, determining the appropriate timing for delivery becomes a more intricate matter [25]. In a proactive study 38 women with severe preeclampsia occurring between 28 and 34 weeks of gestation, these individuals were randomly divided into two groups. One group received aggressive therapy, which included betamethasone administration with delivery scheduled 48 hours later. The other group underwent expectant management, which involved betamethasone administration and delivery only when specific conditions emerged, such as reduced urine output, thrombocytopenia, abnormal liver function tests, imminent eclampsia, pulmonary edema, or severe hypertension despite treatment. The study findings revealed no significant difference in maternal complications between the two groups. The group undergoing expectant management experienced a more advanced gestational age at delivery (an increase of 7.1 days compared to 1.3 days in the aggressive therapy group, $p<0.05$), and there were fewer neonatal difficulties in this expectant management group (33% vs. 75%, $p<0.05$). In another larger trial involving 95 women with severe preeclampsia occurring between 28 and 32 weeks of gestation, where they were randomized to receive either aggressive or expectant management, the expectant group also had a more advanced gestational age at delivery. Additionally, there were fewer instances of neonates requiring admission to the neonatal intensive care unit and fewer cases of respiratory distress in the infants. It's important to mention that this study did not include women with preexisting medical conditions or obstetric complications. A 2002 meta-analysis that examined the comparison between expectant and interventional approaches in the treatment of women with early-onset severe preeclampsia found that there was not enough evidence to endorse one method over the other. A specified recommended by the Society for Maternal-Fetal Medicine involves hospitalizing womens with severe preeclampsia occurring before reaching 34 weeks of gestation for close monitoring [26]. If immediate delivery is not indicated, corticosteroids may be administered to enhance fetal lung maturity. During this hospitalization, women undergo daily laboratory assessments, including liver and renal function tests, and receive daily fetal assessments through ultrasound. Delivery is typically scheduled at or before 34 weeks of gestation and in the presence of any of the following conditions arise: an intense hypertension despite treatment, HELLP syndrome, pulmonary edema, seizures (eclampsia), severe kidney dysfunction, widespread blood clotting problems (disseminated intravascular coagulation), placental detachment (placental abruption), limited fetal growth, insufficient amniotic fluid (oligo- hydramnios), or irregular fetal stress test results. In situations where intense hypertension is present (with blood pressure exceeding 160/110 mm Hg), a trial of antihypertensive therapy may be initiated. However, if blood pressure does not respond to treatment and remains elevated beyond 24 to 48 hours, serious consideration should be given to proceeding with delivery. Given the intricate nature of these cases, considering the potential risks to both the mother and the fetus, the decision should be individualized and evaluated on a case-by-case basis. basis following thorough and thoughtful discussion with the mother. It's advisable to contemplate

seeking a nephrology consultation, particularly when dealing with severe preeclampsia, hypertension, and decisions regarding medication. Furthermore, a nephrologist can track proteinuria levels and assist in categorizing patients based on their risk, identifying those who require more vigilant postpartum renal disease monitoring.

3.3. Chronic Hypertension in Pregnancy

Information obtained from the National Health and Nutrition Examination Survey (1999–2008) reveals that among women aged 20–44 years, approximately 7.7% have been diagnosed with hypertension [27,28]. Among this group, around 4.9% of women are actively managing their hypertension through pharmacologic therapy. The two most frequently prescribed categories of medications for these women are diuretics, which are prescribed to 47.9% of them, and angiotensin-converting enzyme (ACE) inhibitors, which are prescribed to 44.0% of them. Providing prenatal counseling to women with chronic hypertension is a crucial aspect of their healthcare. The objectives of such counseling should encompass assessing the presence of any damage to vital organs, making medication adjustments if required, addressing suitable lifestyle changes, and exploring potential underlying factors of hypertension. Considering the recognized
risk of ACE inhibitors for causing birth defects (as explained below), it is essential to counsel women about the significance of using contraception while taking ACE inhibitors. Moreover, it is advisable to switch to an alternative medication class before attempting conception. Debate persists regarding the management of women with mild to moderate chronic hypertension who are on antihypertensive medication before pregnancy. One school of thought suggests discontinuing these medications, closely monitoring blood pressure, and only resuming therapy if blood pressure readings reach the range of 140-160/90-100 mm Hg. Conversely, another perspective supports the continuation of their regular antihypertensive regimen. At present, both strategies are in use, and there is a lack of conclusive evidence to favor one approach over the other. At the heart of this debate is the apprehension that treating mild to moderate hypertension with antihypertensive medications may not offer clear maternal advantages while potentially posing risks to the fetus. These risks stem from the potential adverse effects of intrauterine exposure to antihypertensive medications and the potential negative impact on fetal growth due to altered maternal hemodynamics caused by a reduction in maternal blood pressure, which could impair utero-placental perfusion. The primary immediate complications for mothers experiencing hypertensive pregnancies involve cerebrovascular complications such as cerebral bleeding and seizures, kidney dysfunction, and cardiovascular issues like pulmonary edema. Women who have intense hypertension and show indications of harm to vital organs before becoming pregnant face a heightened risk of conditions such as pulmonary edema, hypertensive encephalopathy, retinopathy, cerebral bleeding, and sudden kidney failure.

3.4. Managing hypertensive pregnancy disorders through non-pharmacological therapeutic methods

Standard of living modifications, like lose weight and decreasing salt consumption, have been demonstrated to be beneficial for individuals with hypertension who are not pregnant [29,30]. Presently, absence of conclusive indication from potential, randomized studies indicating that implementing an exercise regimen throughout pregnancy effectively prevents preeclampsia in those at risk. However, some positive outcomes have been observed in animal studies. Likewise, there is currently no available evidence suggesting that initiating a weight loss program during pregnancy can serve as a preventive measure against preeclampsia. It's important to note that obesity does increase the risk of gestational hypertension and preeclampsia. In 2009, the Institute of Medicine updated its recommendations for gestational weight gain. They advised that women
who were overweight before becoming pregnant (with a body-mass index or BMI of 25–29.9) should aim to gain only 15–25 pounds during pregnancy [31]. In contrast, women who had a normal weight before pregnancy (with a BMI of 18.5–24.9) were advised to aim for a weight gain of 25–35 pounds during pregnancy. As per the latest guidelines, women classified as obese with a BMI

exceeding 30 are advised to aim for a weight gain of only 11–20 pounds during their pregnancy. Due to the common occurrence of volume contraction in preeclampsia, there is typically no standard recommendation for salt restriction. However, bed rest is commonly prescribed and has demonstrated its effectiveness in reducing blood pressure, encouraging diuresis, and decreasing the risk of premature labor.

3.4.1. Medications

The use of medications during pregnancy can potentially prevent the development of intense high blood pressure and the related maternal complications, including heart failure and cerebrovascular incidents. Additionally, it can enhance fetal maturity by allowing for a longer gestational period. Throughout the initiation and adjustment of antihypertensive drugs, it is crucial to closely monitor fetal well-being and safety, which can be accomplished through various methods readily available in routine clinical practice.

The α-adrenergic agonist Methyldopa is one of the medications with a well-established history of safe use during pregnancy. A comprehensive, extended-term study conducted on children born to mothers who received methyldopa treatment throughout pregnancy discovered no elevated occurrence of general health issues or cognitive problems. Due to its well-documented safety profile, methyldopa is the primary choice indorsed by the NHBPEP committee. Methyldopa exerts its action centrally by reducing sympathetic activity, which can result in various side effects, including drowsiness and disruptions in sleep patterns. A potential adverse effect is the mild elevation of liver enzymes, which could potentially be confused with HELLP syndrome in diagnosis. While methyldopa is generally considered safe, it is not a potent medication for lowering blood pressure, and its usage may be restricted due to side effects that correlate with the dosage. To attain target blood pressure levels, methyldopa can be used in combination with other antihypertensive agents, for instance diuretic. Clonidine operates in a manner akin to methyldopa, but its blood pressure-lowering impact is notably more potent. However, clonidine can potentially hinder fetal-growth, particularly if the mother experiences a decrease in heart rate following the initiation of therapy. It is important to note that clonidine may lead to substantial rebound hypertension and lacks the same level of safety record as methyldopa. Consequently, it should be contemplated as an alternative in situations where methyldopa is not well-tolerated.

Beta-blockers are typically easily tolerated and considered safe during pregnancy. Labetalol is increasingly turning in to a preferred choice for managing hypertension during pregnancy. It is an unselective beta-blocker that blocks both beta and alpha-1 receptors. Common adverse effects comprise tiredness, reduced exercise capacity in individuals with reactive airway disease, the potential for bronchospasm. Prospective trials have compared labetalol to methyldopa, and neither medication has been linked to unfavorable maternal or fetal results. Labetalol is accessible in both oral and intravenous formulations, allowing it to be utilized for both outpatient and inpatient treatment. Research has demonstrated that Atenolol has a limited impact on reducing systolic blood pressure in preeclampsia women, and it is additionally linked to intrauterine growth retardation. In light of the availability of more potent medications, such as labetalol, it is advisable to steer clear of Atenolol during pregnancy.

In Calcium channel blockers, a limited-scale study involving mothers with preeclampsia who were administered nifedipine as compared to a placebo, notable reductions were observed in maternal blood pressure, serum creatinine and urea levels, and 24-hour urinary protein measurements. Importantly, these improvements were achieved without any adverse effects on umbilical artery blood flow. In a forward-looking, multi-center cohort investigation that included 78 women who were administered calcium channel blockers, primarily nifedipine and verapamil, during the first trimester of pregnancy, there was no observed rise in significant congenital anomalies. However, there was a higher incidence of preterm delivery among those who received calcium channel blockers compared to a control group that was matched for age and smoking status (28% vs. 9%, p=0.003). This increase in preterm delivery was ultimately attributed to underlying maternal health conditions through stepwise regression analysis. There is limited available data concerning the use of

diltiazem during pregnancy. However, it can be considered as a medication for controlling heart rate during pregnancy. Additionally, in a small study involving patients with underlying renal disease, diltiazem has demonstrated the ability to reduce both blood pressure and proteinuria during pregnancy.

3.5. Data Collection Procedure

Women meeting the inclusion criteria from the outpatient department of Obstetrics and Gynecology at Ayub Teaching Hospital in Abbottabad were enrolled in the study following ethical committee and CPSP research department approval. A comprehensive explanation of the study's participation requirements was provided to the patients, and their informed consent was obtained, outlining the potential advantages of their involvement. The patients underwent a thorough assessment, which included a detailed medical history and clinical examination. Basic demographic information, such as age, parity, gestational age, and the presence of hypertensive disorders, was recorded. All women underwent ultrasound examinations, which were conducted under the supervision of a consultant gynecologist with three years of post-fellowship experience. These ultrasound scans were performed to diagnose placental abruption according to the operational definition and were documented by the researcher herself using a specifically designed data collection form.

3.6. Data analysis and results

The data were subjected to analysis using the statistical software program SPSS version 22. For categorical variables such as age groups, hypertensive disorder presence, and occurrence of placental abruption, frequency and percentage calculations were performed. Quantitative variables including age, gestational age, parity, and weight were described using the mean ± standard deviation (SD). Stratification was carried out based on various factors, including age, gestational age, parity, and weight, to assess their impact on the occurrence of placental abruption. Post-stratification, a chi-square test was applied, and a significance level of $p \leq 0.05$ was considered to determine statistical significance. The age spectrum within this study spanned from 18 to 40 years, with an average age of 29.655 years and a standard deviation of 3.31. The mean gestational age was 28.137 weeks with a standard deviation of 2.11, while the average parity was 1.463 with a standard deviation of 1.45. In addition, the mean weight was recorded as 66.829 kilograms, with a standard deviation of 9.45, as presented in Table I.

Table I. Mean ± SD of age, Gestational age, Parity, and Weight n=270.

Demographics		**Mean ± SD**
1	**Age (years)**	29.655±3.31
2	**Gestational age (weeks)**	28.137±2.11
3	**Parity**	1.463±1.45
4	**Weight (Kg)**	66.829±.9.45

The frequency and percentage of patients according to age group are shown in Table II.

Table- II: Frequency and percentage of patients according to age group n=270.

Age group (years)	frequency	%age
18-30	192	71.1%
31-40	78	28.9%
Total	270	100%

The PIH was 38.1%, Preeclampsia 46.3% and Eclampsia was 15.6% as shown in Table III.

Table- III: Frequency and percentage of patients according to hypertensive disorders n=270.

Hypertensive disorders	Frequency	%age
PIH	103	38.1%

Preeclampsia	125	46.3%
Eclampsia	42	15.6%
Total	270	100%

The Placental Abruption was seen in 54.1% of patients as shown in Table IV.

Table- IV: Frequency and percentage of patients according to Placental Abruption n=270.

Placental Abruption	Frequency	%age
Yes	146	54.1%
No	124	45.9%
Total	270	100%

The stratification of Placental Abruption concerning age, gestational age, parity, and weight are shown in Tables V, VI, VII, and VIII respectively.

Table- V: Stratification of Placental Abruption concerning age.

Age (years)	**Placental Abruption**		**p-value**
	Yes	**No**	
18-30	101(52.6%)	91(47.4%)	0.447
31-40	45(57.7%)	33(42.3%)	
Total	**146(54.1%)**	**124(45.9%)**	

Table- VI: Stratification of Placental Abruption concerning gestational age.

Gestational Age (weeks)	**Placental Abruption**		**p-value**
	Yes	**No**	
21-30	141(61%)	90(39%)	0.000
>30	5(12.8%)	34(87.2%)	
Total	**146(54.1%)**	**124(45.9%)**	

Table- VII: Stratification of Placental Abruption concerning parity.

Parity	**Placental Abruption**		**p-value**
	Yes	**No**	
0-2	102(52.8%)	91(47.2%)	0.523
3-4	44(57.1%)	33(42.9%)	
Total	**146(54.1%)**	**124(45.9%)**	

Table- VIII: Stratification of Placental Abruption concerning weight.

Weight (Kg)	**Placental Abruption**		**p-value**
	Yes	**No**	
≤70	106(54.6%)	88(45.4%)	0.766
>70	40(52.6%)	36(47.4%)	
Total	**146(54.1%)**	**124(45.9%)**	

Placental abruption is a critical obstetric emergency, and it is known to be linked to a wide array of risk factors. These factors include maternal age, educational background, chronic hypertension, pregnancy-induced hypertension, parity, smoking habits, instances of small for gestational age babies, chorioamnionitis, prolonged rupture of membranes, anemia, and ischemic heart disease, among others. Some of these factors have been proposed as potential causes of placental abruption, but their significance has, in some cases, been challenged. In my study, placental abruption was noted in 54.1% of the patients.

Conclusion

In conclusion, the research on the frequency of placental abruption among pregnant individuals affected by hypertensive disorders underscores the critical importance of early detection, monitoring, and management of hypertension during pregnancy. This study has provided valuable insights into the heightened risk of placental abruption in this specific population, shedding light on the potential consequences for both maternal and fetal health.

The findings of this research indicate that pregnant individuals with hypertensive disorders should receive diligent and timely prenatal care, including regular blood pressure monitoring and appropriate medical interventions. Healthcare professionals need to be vigilant and well-informed about the increased risk of placental abruption in these cases to ensure prompt diagnosis and effective management. Moreover, the study underscores the necessity for ongoing research and awareness initiatives to improve the prevention and management of hypertensive disorders during pregnancy. A deeper understanding of the underlying mechanisms and risk factors involved in placental abruption among hypertensive individuals can lead to better strategies for risk reduction and more favorable outcomes for both mothers and babies.

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