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Clinical profile of pregnant women with pregnancy induced hypertension

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Abstract
Multisystem disorders of unknown aetiology characterized by development of HTN to the extent of 140/90 mm Hg or more with Proteinuria after 20thwk of pregnancy in a previously normotensive and non proteinuric patient. May appear before 20wks in cases of hydatidiform mole, acute polyhydramnios and multiple pregnancies. BP≥ 140/90 mm Hg before pregnancy or diagnosed before 20 weeks gestation not attributable to gestational trophoblastic disease (OR) Hypertension first diagnosed after 20 weeks gestations and persistent after 12 weeks postpartum. In chronic HTN, the foetus is more prone for growth restriction, preterm delivery, and death of foetus. 50% of the cases belong to The Labetalol Group, while the other 50% comprise The Nifedipine Group, selected randomly. Each group comprised a total of 62 cases, 50 of them are Mild PIH cases while the other 12 cases are the cases of Severe Hypertension, Imminent Eclampsia, Eclampsia, Placental Abruption etc. Most of the cases of Labetalol Group progressed up to term, of which one case crossed the EDD. This woman was discharged at her request and she reported to the hospital only after crossing the EDD. As many as 69.35% (43 cases) delivered vaginally in Labetalol Group, whereas the Caesarean section rate for Nifedipine group is about 48.39%. Emergency Caesarean section rate was 25.80% in Labetalol group where as it was 37.10% in the Nifedipine Group.

Keywords: PIH, pre eclampsia, clinical profile

Introduction
Chesley (1978) has rightfully described preeclampsia, as a disease of theories.
Tillman (1964) by evidence based experiments proved that blood pressure tends to vary in different periods of pregnancy. It tends to decrease during the first trimester of pregnancy, to remain at a low level during early part of second trimester and then returns to normal for that individual [1].
Deustscher, Kjelsburg and Epstein (1966) compared blood pressure levels of relatives of women with preeclampsia with control group and found that mothers and sisters of women with preeclampsia have elevated blood pressures.
Chesley (1964) by quoting several studies expressed a statement "I think pregnancy is a screening test for latent for potential hypertensives".
Older source for Eclampsia literature starts from 2,200 B.C when Kahun Papyrus mentioned "to prevent the women from biting her tongue, avite means a small wooden stick, pound upon her jaws" [2].
Verandaeus coined the term 'Eclampsia' in 1668. Mauriceau recognized that the disease can be treated by prompt delivery.
In 1778, Leverage suggested early induction of labour and even caesarean section at one time as immediate means for the patient recovery [3].
In the early 19th century, on the end stage of toxemia, Eclampsia was recognized. It was generally believed to be a special form of epilepsy associated pregnancy.
John Lever in London in 1843, made the important observation that pregnant women with edema, blurred vision and headaches had albumin in their urine and warning signs of impending Eclampsia. Lever also demonstrated that Eclampsia was more common in first pregnancies [4].
In 1894, Ahlfeld mentioned that the disorder was due to the existence of specific toxins of pregnancy, which were produced in the placenta and thus it came to be called toxemia.
According to ACOG, the diagnosis of Hypertension in pregnancy is made by any one of the following criteria [5, 6].

- Systolic BP of 140 mm Hg or more.

- Diastolic BP of 90mm Hg or more.
- Rise of 30mm Hg or more in Systolic BP } No Longer.
- Rise of 15mm Hg or more in diastolic BP } Recommended
- MAP of 105mm Hg or rise of 20 mm over the previous reading.
- The rise of BP should be observed on at least two different occasions at least 6hrs apart.
- Kort Korf V phase is used to define the diastolic BP.
- The measurement of BP should be taken from Rt. Upper arm, preferably in sitting posture.
- The cuff should be horizontal to the heart.

If pitting edema is seen over the ankles after 12 hrs of bed rest is a pathogenic sign. Edema now abandoned as a diagnostic criterion because edema is seen in normal pregnant women. Rapid gain in wt of 1lb for a wk or more than 5lbs for a month in later half of pregnancy-risk factor.

Multisystem disorders of unknown aetiology characterized by development of HTN to the extent of 140/90 mm Hg or more with Proteinuria after 20thwk of pregnancy in a previously normotensive and non proteinuric patient. May appear before 20wks in cases of hydatidiform mole, acute polyhydramnios and multiple pregnancies [7].

BP≥140/90mm Hg before pregnancy or diagnosed before 20 weeks gestation not attributable to gestational trophoblastic disease (OR) Hypertension first diagnosed after 20 weeks gestations and persistent after 12 weeks postpartum. In chronic HTN, the foetus is more prone for growth restriction, preterm delivery, and death of foetus [8].

Methodology

One hundred and twenty four cases of Pregnancy Induced Hypertension were studied during the period of 2 years at the Department of Obstetrics and Gynaecology, Government General Hospital, a Teaching Hospital attached to Medical College.

50% of the cases belong to The Labetalol Group, while the other 50% comprise The Nifedipine Group, selected randomly. Each group comprised a total of 62 cases, 50 of them are Mild PIH cases while the other 12 cases are the cases of Severe Hypertension, Imminent Eclampsia, Eclampsia, Placental Abruption etc.

Criteria for selection of patients

Mild Group

- Women between the age group of 18-45years.
- Patients with gestational age beyond 20wks.
- Patients with Diastolic Blood Pressure greater than or equal to 100mm Hg &/or Systolic greater than or equal to160mm Hg. (NHBPEP recommendation).
- Patients with other associated medical disorders like Diabetes and Heart Diseases are excluded.

Severe Group

- Women between the age group of 18-45 years.
- Patients with GA beyond 20wks.
- Patients with a blood pressure of 160/110 mm Hg. or more
- Patients with Imminent Eclampsia, Eclampsia, Placental Abruption etc. with Severe Hypertension.

Method of Study

Baseline investigations like Complete Blood Count, Platelet count, Coagulation profile, Renal and Liver functions tests, USG for AFI, BPP and Fundus examination were done before starting the treatment. Proper history regarding contraindications for the drugs being used was taken.

Blood Pressure recorded at 6 hourly intervals in mild group, once in every 5min in severe hypertension group until it is controlled satisfactorily.

Pulse should be counted for complete one minute, character, volume, rhythm were also noted. Patient should be closely monitored for after drug administration for any side effects. Foetal Heart rate was also monitored.

Results

Table 1: Distribution of cases: according to registration (booked/unbooked)

Registration	Labetalol group (n:62)	Nifedipine group (n:62)	Total (n:124)	Emergency admissions (n:24)
Booked	44 (70.96%)	46 (74.97%)	90 (72.58%)	8 for 90 (8.88%)
Un Booked	18 (29.04%)	16 (29.03%)	34 (27.41%)	16 for 34 (47.05%)

8 cases (8.88%) among 90 booked cases required emergency admission, whereas 16 out of 24 unbooked cases required emergency admission for Eclampsia, Abruptio Placenta, and Severe HTN.

Table 2: Distribution of cases to rural/urban areas

Place	Labetalol group (n:62)	Nifedipine group (n:62)	Total (n:124)	Emergency admission (n=24)
Rural	35 (56.45%)	29 (46.77%)	64 (51.61%)	15 (62.5%)
Urban	27 (43.55%)	33 (53.23%)	60 (48.39%)	9 (37.5%)

Though the cases are almost equally from Rural and Urban areas, majority of cases those required emergency admission are from rural areas 15 out of 24 emergency admissions (62.5%).

Most of the cases were below 20 years of age. This is consistent with general observation that Pregnancy induced hypertension is more common in teenage Pregnancies.

Table 3: Distribution of cases according to age

Age in years	Labetalol group	Nifedipine group	Total (n:124)
< 20 years	35 (56.45%)	38 (61.29%)	73 (58.87%)
21-25 yrs	23 (37.09%)	16 (25.81%)	39 (31.45%)
26-30 yrs	3 (3.22%)	6 (9.68%)	9 (7.25%)
>30 years	1 (1.61%)	2 (3.22%)	3 (2.42%)

Table 4: Distribution according to gravidity

Gravidity	Labetalol group	Nifedipine group	Total (n:124)
Primi	44 (70.97%)	41 (66.13%)	8 (68.55%)
Second Gravida	14 (22.59%)	15 (24.19%)	29 (23.39%)
Third Gravida	4 (6.45%)	3 (3.22%)	7 (5.64%)
Fourth Gravida	-	3 (3.22%)	3 (2.42%)

Most of the cases were primi Gravida. This is consistent with the cases that PIH is more common in Primi Gravida.

Table 5: Gestational age at delivery

Gestational age at delivery	Labetalol group (n:62)	Nifedipine group (n:62)
40-42 weeks	1 (1.61%)	-
37-39 weeks	42 (67.74%)	35 (56.45%)
34-36 weeks	8 (12.90%)	12 (19.35%)
31-33 weeks	6 (9.68%)	8 (12.90%)
28-30 weeks	4 (6.45%)	5 (8.06%)
<28 weeks	1 (1.61%)	2 (3.22%)

Most of the cases of Labetalol Group progressed up to term, of which one case crossed the EDD. This woman was discharged at her request and she reported to the hospital only after crossing the EDD.

Table 6: Mode of delivery (all cases)

Route of delivery	Labetalol group (n:62)	Nifedipine group (n:62)
A) Vaginal	43 (69.35%)	32 (51.51%)
-Spontaneous	25 (40.32%)	13 (20.96%)
-Induced	18 (29.03%)	19 (30.65%)
B) Caesarean Section	19 (30.65%)	30 (48.39%)
-Elective	3 (4.84%)	7 (11.29%)
-Emergency	16 (25.80%)	23 (37.10%)

As many as 69.35% (43 cases) delivered vaginally in Labetalol Group, whereas the Caesarean section rate for Nifedipine group is about 48.39%.

Emergency Caesarean section rate was 25.80% in Labetalol group where as it was 37.10% in the Nifedipine Group.

Emergency Caesarean sections with uncontrolled Blood Pressure and its complications are very less in Labetalol Group.

Discussion

Antenatal Care

Most of the patients 16 out of 24 (66.66%)) who come for emergency admissions such as Imminent Eclampsia Abruptio placenta and Severe PIH were unbooked 16 out of 24 (66.66%)), whereas 8 cases out of 90 booked cases required emergency admissions and is due to irregular checkups, noncompliance with Antihypertensives.

8 cases (8.88%) among 90 booked cases required emergency admission, whereas 16 out of 24 unbooked cases required emergency admission for Eclampsia, Abruptio Placenta, and Severe HTN.

15 cases out of 24(62.5%) who required emergency admission are from rural areas. Most of them were unbooked cases. This is due to lack of transport facilities, lack of awareness regarding antenatal care.

In this study, 58.87% of total patients were below 20 years of age out of these 56.45% of Labetalol group and 61.29% of Nifedipine group were below 20 years. This is consistent with general observation that pregnancy induced hypertension is more common in teenage.

In this study, the incidence of preeclampsia is more common in Primigravida-68.55%-70.97% of Labetalol group, 66.13 of Nifedipine were Primigravidas. This is consisted with the fact that hypertensive disorder 6-7 times more common in Primigravidas chesley 1978 [9].

According to immunological theory, in the primis, who are exposed to chorionic villi for the first time, an acute graft rejection like reaction occurs at the maternal placental interface, as observed by electron microscopy by Labavens 1988, which leads to reduced placental perfusion.

In the multiparous women also incidence of PIH is more common after they cross 30 years of age. This may be due to superimposed pre-eclampsia on chronic hypertension [10]. In this study, multiparous women comprised only 17% of study group because of the fact that early marriages are common in India and increasing acceptance of sterilization after 2 or 3 children.

Mean Systolic pressure fell from 138.66 to 126.6 with Labetalol and from 138.4 to 130.4 with Nifedipine in Mild Pregnancy induced Hypertension group.

Mean Diastolic Pressure fell from 98.00mm Hg to 82.8mm Hg with Labetalol and from 97.8 to 88.4mm Hg with Nifedipine.

Fall of Mean Systolic pressure from 191.67mm Hg to 139.1mm Hg with Labetalol and from 192.5 to 143.33 mm Hg with Nifedipine.

Fall Diastolic Pressure from 124.16 mm Hg to 98.33 mm Hg with Labetalol whereas with Nifedipine it is from 125.83 mm Hg to 103.33 mm Hg. (P value is 0.0001)

Fall in Diastolic Blood Pressure is more significant with Labetalol in both Mild and severe Groups.

Conclusion

- The study includes 124 cases of pregnancy induced Hypertension. 62 cases were treated with Labetalol and 62 cases were treated with Nifedipine.
- Out of 62 cases of each group, 50 cases are of mild PIH and other 12 cases were cases of severe PIH

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