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Comparative study of efficacy of methyldopa vs labetalol in the management of pregnancy induced hypertension in respect to maternal and perinatal outcome

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Abstract
Background: To compare the value of methyldopa against labetalol among two groups of patients in pregnancy induced hypertension (PIH).
Methods: 150 women with PIH were divided into 2 groups to receive either labetalol (group A) or methyldopa (group B).The doses in both groups were modified as per requirement, to maintain diastolic blood pressure<100mmHg.Modification was done for better outcome of the study; keeping the maximum dose of Labetalol at 1200mg /day and methyldopa at 2gm/day. The data was collected by observation and measurement of various clinico-biochemical parameters. The statistical level of significance was taken at <0.05.
Result: It was seen that group A less prone to developed thrombocytopenia(2.6% vs 10.7%), alteration of liver enzyme (2.6% vs 8%), dearranged Coagulation profile (2.6%vs9.3%).More number of women developed headache and drowsiness in group B than group A (37.2% vs 25.6%) and (25.6%vs12.8%) respectively. In antenatal period both groups had good DFMC (87% vs 82%), with very less incidence of pathological CTG in intra partum period (12%vs16%). None of drug had any direct effect in improving peninatal outcome.
Conclusion: Labetalol has quicker action, more efficacious to control blood pressure. Better maternal outcome with lesser development of complication is found with labetalol. None of this drug (Labetalol and Methyldopa) had only edge over the other with respect to perinatal outcome.

Keywords: Pregnancy induced hypertension, labetalol, methyldopa

Introduction
Hypertension is one of the commonest medical disorders affecting 5% to 12% of all pregnancies [1], for maternal and foetal or both. This disorder is responsible for approximately 31% maternal mortalities in developing countries [2] and 18% to 21% in India. The clinical course of hypertension in pregnancy is progressive and is characterised by continuous deterioration until delivery. Mother may suffer from intracranial haemorrhage with multi organ failure, Placental abruption and its sequelae. Death and cardiovascular accidents are very rare. Although the maternal and foetal outcome of an uncomplicated well controlled mild to moderate hypertension in pregnancy almost the same as that of normotensive pregnancies. But increase maternal morbidity mainly due to multiorgan involvement, prolonged stay in hospital, repeated admission, ICCU admission. Increase Perinatal mortality associated with Hypertensive disorder in pregnancy (HDP) is primarily due to preterm delivery, prematurity, intrauterine growth restriction due to utero placental insufficiency and unexplained foetal death. Iotrogenic preterm delivery leads to increase perinatal morbidity. Therefore early detection and appropriate management of such disorder would improve the outcome for both the mother and the foetus.
The etiology of Hypertension during pregnancy remains unknown. There is evidence that such pregnancies are commonly associated with reduced utero placental blood flow. This is thought to be due to the development of certain pathological obstructive lesions at the level of the spiral arterioles. Despite intensive research there is confusion about its classification, diagnosis and treatment. The classification of hypertensive disorders complicating pregnancy by the working group of the National High Blood Pressure Education Program (NHBPEP 2000) [3] is shown below: -

1. Gestational hypertension (pregnancy induced hypertension): Absolute rise of blood pressure ≥140/90 mm of Hg at least 6 hours. Apart, after 20 weeks of gestation.

2. Preeclamsia: Blood pressure≥ 140/90 mm of hg after 20 weeks of gestation with proteinuria in previously normotensive and non proteinuric women.
3. Eclampsia: Women with preeclampsia complicated with convulsion and or coma.
4. Preeclampsia superimposed on chronic hypertension [occurrence of new onset of proteinuria in women with chronic hypertension].
5. Chronic hypertension [known hypertension before pregnancy or hypertension diagnosed first time before 20 weeks of gestation].

According to WHO, HDP divided into 2 groups (Mild to moderate, Severe) and according to NHBPEP (2000) into 3 groups (Mild. Moderate. Severe). In our study we followed NHBPEP's classification.

The severity of HDP range from mild to severe. Although the clinical management of severe HDP is generally standardised and acceptable to almost all the clinician. There is controversy regarding use of antihypertensive agents in mild form of HDP. As HDP is a progressive disease, mild to moderate uncontrolled blood pressure may goes to severe form of hypertension. The complications of increased blood pressure became severe, outcome will be poor. So the progression as well as makers of poor outcome needs to be determined as early as possible. However at present no biomarkers have sufficient discriminatory ability to be useful in clinical practice and no effective preventive strategies have yet been identified.

Drug selection can be complex as efficiency and maternal side effects must be weighed against potential risk to the foetus. Verifications of an individual drug, foetal safety, cost benefit is limited as most evidence is disclosed from epidemiologic, prospective cohort or case control studies.

Commonly used medications for the treatment of hypertension in pregnancy includes-

a. Methyldopa (Alpha adrenergic blocker)
b. Labetalol (Combined alpha & beta blockers)
c. Ca channel blocker (Nifedipine)
d. Beta$_1$ blocker with little effect on beta$_2$ (Atenolol)
e. Selective beta blocker (Metoprolol).

Alpha Methyldopa is most commonly used drugs. lt is being used since long period.[4,5] It is a centrally acting antihypertensive drugs, act by decreased efferent sympathetic activity. It has side effects due to its central actions. But it is cheap drug.

Labetalol is comparatively newer drug. Combined alpha and beta blocker. lt blocks both alpha and beta receptor. lt decreases total peripheral resistance. Its action is quick. It has very few side effects. Labetalol has been shown to be effective in the treatment of essential hypertension (Pritchard etal, 1975) [6] also studies have revealed that labetalol has a more rapid onset of action without reflex tachycardia, may exert a positive effect on early foetal lung maturation in patient with severe hypertension who are remote from term, increase utero placental perfusion & decrease uterine vascular resistance (James, Steer, Weinr, Govit, hypertension high risk pregnancy 2006).

Basic Comparative Information

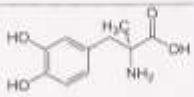
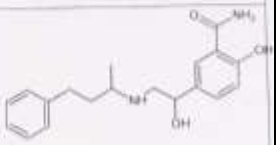
	Alpha Methyle Dopa	Labetalol
Chemical structure		
IUPAC NAME	(S)-2-amino-3-(3,4-dihydroxyphenyl)-2-methyl-propanoic acid	(RS)-2-hydroxy-5-[1-hydroxy-2-[(1-methyl-3-phenylpropyl)amino]ethyl]benzamide
Routs	Oral	Oral, IV
Mechanism of action	• Stimulation of central alpha-2-receptor via alpha-ethylnorepinephrin. • Alpha -2- peripheral blocker. • Reduces systemic vascular resistance	• Decreases total peripherial resistance. • Alpha-adrenergic blockade causing vasodilation.
Metabolism	Hepatic	Hepatic
Half- life	2 hours approx	4 hours
Onset of action	2 – 4 hours	20 - 30 minits
common Side effects	Depression, Apathy, Drowsiness, Headache, Cognitive impairment, Vertigo,Psychosis, Dry mouth, Syncope, Hepatitis,Bradycardia Orthostatic hypotension, Hypersensitivity .	Headache, Syncope Hepatitis,fever, lupis erythematoses, Hypersensitivity .

Fig 1: Basic comparative information

Objectives

The objective of this study is to assess the efficacy & safety of Labetalol compared with Methyldopa in the management of pregnancy induced hypertension (PIH).

Aims

The aim of this study was to compare the efficacy, benefits & adverse effect of two commonly used drugs (Methyldopa & Labetalol) in controlling the pregnancy induced hypertension in two groups of mother.

Material& Methods

Study Details

The study was a hospital based prospective comparative study conducted in the Department of Obstetrics and Gynaecology in Vivekananda Institute of Medical Science, Kolkata. It is a multidisciplinary hospital. Study population consisted of women, residing in and around the city of Kolkata who had attended the antenatal outdoor clinic of our hospital and fulfilled the eligibility criteria were included in this study. Total 150 patients were taken into the study. One group named A and other half were allocated in group B.

Sample Design

Inclusion Criteria

1. Singleton pregnancy.
2. Gestational age 20 ≥weeks.
3. Blood pressure 140/90 mm of Hg for 1st time during pregnancy on two separate occasion; at least 6hrs apart, irrespective of protenuria.

Exclusion Criteria

1. 1ST antenatal visit < 20 wks gestation
2. Multifetal pregnancy.
3. Chronic hypertension.
4. Pts with H/O Depression, epilepsy, Heart ds, Asthma Kidney ds, SLE, DM, Pheochomocytoma, Liver ds in pregnancy & any other serious illness.

Sample Technique

The sample size was calculated with the help of the formula [7]:

$$n > \frac{z\alpha 2 \times SD2}{d2}$$

Here, n = Sample size, $z\alpha$ = Type 1(Alpha) Error, d =Error value, SD = standard deviation.

Data Collection Techniques & Study Tools

The data was collected by observation and measurement of various parameters as required and then recorded. The parameters were as follows:

Based on

- Demographic data
- History taking.
- Examination
- Investigations
- Follow up: pts were managed as in-patients. Mothers & babies were followed up at least 48 hrs after delivery.

Monitoring

- BP was checked 4 hrly & as when necessary.
- Urine- albumin was monitored 12 hrly.
- Patients were followed up with RFT, LFT, Coagulation profile together with Fundoscopy as per PIH profile followed in this institute.
- Fetal monitor was performed by clinical/sonographical/ CTG.
- Mode of delivery & outcome of neonates-were recorded & followed at least 48hours of delivery.

Method

This study was conducted on 150 patients. Out of these, 75 received Tab Labetalol (Group A) and other 75 received Tab Methyldopa (Group B). Entry of Group A or Group B was decided by simple random method followed by random allocation in Group A and Group B accordingly. Clinico-biochemical effect and frequency of side effect were studied. The statistical level of significance was taken at 'p' less than 0.05. At booking the blood pressure was 140/90 mm of Hg for the first time during pregnancy (more than 20 weeks of Gestation) on two separate occasions; at least 6 hrs, irrespective of proteinuria. Group A were started on Tab Labetalol 100 mg per oral twice daily and Group B Tab Methyldopa 250 mg per oral 4 times daily. The dose in both the group was increased as per requirement to maintain diastolic BP <100 mm of Hg, modification was done for better outcome of the study; keeping maximum dose of Labetalol at 1200 mg /day and Methyldopa at 2 gm/day. For all these patient BP was checked 4 hourly (with a mercury Sphygmomanometer in the semi recumbent position. Korotkoffs sounds 1 and 4 were used as the cut-off line for systolic and diastolic BP. The patients who have been admitted in the same antenatal ward, given a regular hospital diet and allowed unrestricted activity. Urine albumin was monitored 12 hourly by Heat test and Acetic acid method, blood investigation including PCV, platelet count, LFT, urea, creatinine, uric acid, PT, APTT, 24 hour urine protein were usually sent on admission and then repeated twice weekly till one week post partum. Fundoscopy was performed on admission and thereafter weekly to rule out hypertensive retinopathic changes of both eyes. All patient were observed and monitored for the development of any side effects like (headache, drowsiness, oedema, syncope, fever) and complication like HELLP syndrome, severe PIH or eclampsia .The mode of delivery was decided by performing a pelvic assessment and Bishop's scoring. Management of labour was uniform in both groups. Foetal outcome was assessed in the ante partum period with the help of DFMC chart and by monitoring the foetal growth by USG, intrapartum by CTG and post partum by taking details of birth history and vital monitoring for 48 Hours, NICU admission, incidence of SGA and Preterm delivery.

Result

Observations were tabulated as follows.

Table 1A: Demographic Parameters

	Group A Mean±SD	Group B Mean±SD	P Value (95%CL)	Significnce
AGE(Years)	27.36±4.67	27.77±4.99	0.337 (-0.8;2.32)	NOT Significant
BMI	25.75±3.32	25.50±3.6	0.093 (-0.15;1.19)	
SBP at Booking (mmHg)	115.57±14.77	113.29±14.43	0.075 (-0.43;8.99)	
DBP at Booking (mmHg)	70.16±6.25	70.47±6.44	0.761 (-2.292;1.68)	
MAP at Booking (mmHg)	85.29±6.43	84.79±5.82	0.271 (-0.87;3.08)	
GA at Admisson (Weeks)	31.08±1.821	31.47±1.47	0.06 (-0.082;1.14)	

Table 1B: Demographic Parameters

Parity	Group A N (%)	Group B N (%)	P Value	Significance
P0+0	36(47%)	37(49%)	0.498	Not Significant
P1+1	21(27%)	21(27%)		
P2+1	18(26)	17(24%)		

Table 2: Effective Control of BP

A. Antepartum

		Group A	Group B	P Value	Significance
		Mean±SD	Mean±SD	(95% Cl)	
Initiation of Labour	SBP (mmHg)	135.08±3.35	135.76±3.16	0.18 (-0.38; 0.89)	Not Significant
	DBP (mmHg)	93.81±2.793	94.05±2.53	o. 185 (-0.572; 0.45)	
	MAP (mmHg)	107.56±2.18	107.75±2.13	0.832 (-0.352; 0.44)	
During Labour	SBP (mmHg)	150.36±6.45	170.09±6.558	<0.001 (-21.83; 17.63)	Significant
	DBP (mmHg)	100.44±5.71	110.27±6.915	<0.001 (-30.87; 9.78)	
	MAP (mmHg)	117.08±4.1	130.21±5.23	<0.001 (-15.92; - 12.88)	
1 Hr after Delivery	SBP (mmHg)	145.41±3.1	154.25±8.97	<0.001 (-11.63; - 7.19)	
	DBP (mmHg)	100.43±6.35	104.92±8.88	<0.001 (-7.882; - 2.89)	
	MAP(mmHg)	115.42±4.55	121.36±6.558	<0.001 (-8.58; - 4.94)	

B. Intrapartum

	GroupA	Group B	P Value	Significance
	Mean±SD	Mean ±SD	(95% CL)	
SBP at Admission (mmHg)	150.52±3.379	150.17±3.302	0.233 (-1.731; 0.42)	Not Significant
DBP at Admission (mmHg)	119.16±4.211	119.52±4.17	0.600 (-1.72; 0.14)	
MAP at Admission (mmHg)	129.61±3.04	129.73±2.84	0.306 (-1.443; 0.457)	
Control achieved (Weeks)	1	2	<0.001 (-1; - 0.99)	Significant

C. Postpartum

		Group A	Group B	P Value	Significance
		Mean±SD	Mean	(95% Cl)	
1st DAY	SBP (mmHg)	145.07±8.96	135.81±4.009	<0.001 (7.01; 11.49)	Significant
	DBP (mmHg)	94.71±2.98	100.53±6.05	<0.001 (-7.36; -4.28)	Significant
	Map (mmHg)	111.55±3.69	112.29±4.43	0.224 (-2.13; 0.5)	
2nd DAY	SBP (mmHg)	135.48±3.655	150.88±8.06	<0.001 (-17.42; -13.37)	Significant
	DBP (mmHg)	92.93±3.35	94.79±3.04	<0.001 (-2.88; 0.819)	Significant
	MAP (mmHg)	107.11±2.669	113.48±3.52	<0.001 (-7.362; - 5.35)	Significant

Table 3: Incidence of Laboratory Abnormality

	Group A	GROUP B	P	Significance
	N(%)	N(%)	Value	
Haemoconcentration	1 (1.3)	3 (4.0)	0.732	Not Significant
Raised Uric Acid	1 (1.3)	2 (2.6)	0.216	Not Significant
Elevatated serum creatinine level	1 (1.3)	2 (2.6)	0.812	Not Significant
HELLP Syndrome		1 (1.3)	0.205	Not Significant
Eclampsia	1(1.3)	2 (2.6)	0.770	Not Significant
Thrombocytopenia	2 (2.6)	8 (10.7)	<0.001	Significant
Proteinuria	2 (2.6)	8 (10.7)	<0.001	Significant
Raised SGOT Level	3 (4.0)	6 (8.0)	<0.001	Significant
Raised SGPT Level	2 (2.6)	6 (8.0)	<0.001	Significant
Deranged PT. INR	2 (2.6)	7 (9.3)	<0.001	Significant
Deranged APTT	2 (2.6)	7 (9.3)	<0.001	Significant
Severe PIH		18 (24)	<0.001	Significant

Table 4: Frequency of Side Effects

	Group A	Group B	P Value	Significance
	N(%)	N(%)		
Headache	20 (25.6)	29 (37.2)	<0.001	Significant
Drowsiness	10 (12.8)	20 (25.6)		Significant
Edema	24 (31)	27 (34.6)	0.083	Not Significant
Syncope	8 (10)	9 (12.5)	0.544	Not Significant
Hepatitis	0(0)	2 (2.6)	0.673	Not Significant
Fever	0(0)	1 (1.3)	0.770	Not Significant
Depression	0(0)	2 (2.6)	0.276	Not Significant

Table 5: Duration of Pregnancy

GA at Admission	Group A (Weeks)	Group B (Weeks)	P value (95% CL)	Significance
	Mean±SD	Mean±SD		
28 to 30 weeks	36±0.01	34.1±0.75	0.078 (2.87; 3.51)	Not Significant
30 to 34 weeks	37.07±0.70	37.01±0.11	0.305 (-0.53; 0.17)	Not Significant
34 to 36 weeks	38.13±0.84	37.15±0.37	<0.001 (0.58; 1.38)	Significant

Table 6: Duration of Therapy

	Group A	Group B	P value (95% C.I)	Significance
	Mean±SD	Mean±SD		
Duration of Therapy (weeks)	5.48±1.4	4.84±1.82	<0.001 (0.52; 0.9)	Significant
Highest Diastolic Pressure (mmHg)	103.95±2.23	113.06±4.43	<0.001 (10.14;8.08)	Significant

Table 7: Need For Additional Drug Therapy

GA at Admission	Group A	Group B	Total	P value (95% C.I)	Significance
	N(%)	N(%)	N(%)		
Need for added therapy	6 (8)	12(16)	18(12)	<0.001	Significant

Table 8: Gestational Age At Delivery

GA at Admission	Group A	Group B	P value (95% C.I)	Significance
	Mean±SD	Mean±SD		
Need for add therapy	37.43±0.70	36.54±1.48	<0.001	Significant

Table 9: Mode of Delivery

	Group A	Group B	P value (95% C.I)	Significance
	N(%)	N(%)		
Vaginal- Instantaneous	(29.33)	7(9.33)	<0.001	Significant
Vaginal- Induced	8(10.66)	8(8.66)		
Caesarean	45(60)	60(80)		

Table 10: Indications for Caesarean Sections

	Group A	Group B	P value (95%C.I)	Signficance
	N(%)	N(%)		
Severe PIH	3(4)	15(20)	0.004	Significant
Abruption	o(o)	2(2.6)	0.81	Not Significant
Fetal Distress	24(32)	28(37.3)	0.74	Not Significant

Table 11: Incidence of Intrapartum Eclampsia

	Group A	Group B	P value (95% C.I)	Significance
	N (%)	N (%)		
Incidence of Eclampsia	o(o)	1(1.3)	1.84	Non-Significant

Table 12: Postpartum Events

	Group A	Group B	P value (95%C.I)	Significance
	N(%)	N(%)		
Incidence of Proteinuria	1(1.3)	3(4)	0.138	Non-Significant
Incidence of Eclampsia	0(0)	1(1.3)	0.146	Non-Significant

Table 13: DFMC Assessment

Daily Fetal Movement Count	Group A	Group B	P value (95% C.I)	Significance
	N(%)	N(%)		
BAD	10(13)	14(18)	0.203	Non-Significant
GOOD	65(87)	61(82)		

Table 14: Incidence of IUGR

	Group A	Group B	P value (95% c.i)	Significance
	N(%)	N(%)		
Incidence of IUGR	16(21)	15(20)	0.691	Non-Significant

Table 15: Incidence of Pathological CTG

Pathological CTG	Group A	Group B	P value (95% C.I)	Significance
	N(%)	N(%)		
Present	9(12)	12(16)	0.125	Non-Significant
Absent	66(88)	63(84)		

Table 16: Summary of Live Births

		Group A	Group B	P value (95% C.I)	Significance
		Mean±SD	Mean±SD		
Birth Weight	grams	1927±683.3	1836±706.09	0.252	Non-Significant

Table 17: Summary of Live Births Contd.

	Group A	Group B	P value (95% C.I)	Significance
	N(%)	N(%)		
Small for Gestational Age	10(13)	14(20)	0.537	Non-Significant
Apgar Score <8 at 5 mins	3(4)	5(6.6)	0.315	Non-Significant
NICU Admission for >9 days	12(16)	16(21)	0.502	Non-Significant
Born before 37 weeks	10(13)	12(16)	0.256	Non-Significant

Result

Patient receiving Labetalol were less prone to thrombocytopenia (2.6% vs 10.7%), proteinuria (2.6% vs 10.7%), alteration of lever enzyme (2.6% vs 8%) and deranged coagulation profile (2.6% vs 9.3%) of which most were statistically significant with 'p' value less than 0.001. Few patient required additional drug for effective BP control in the later month of pregnancy [group A vs group B is 8% vs 16%]. Patient (Group B) developed increase headache and drowsiness (25.6% vs 37.2% and 12.8%vs 25.6%). On analysing the mode of delivery it was noted that labetalol had more spontaneous delivery. Patient receiving both the drug had a good DFMC (87% vs 82%), with less incidence of pathological CTG in the intrapartum period (12% vs 16%). By analysing the birth details and 48 hours postpartum period, it was deduced that none of the drugs had any direct effect in improving perinatal outcome; however indirectly it helped in prolonging the pregnancy and thereby decreases the chances of prematurity and its associated complication.

Discussion

The treatment of hypertension in patients with mild PIH can halt or retard progression of the disease is a matter for debate. PIH is clearly secondary to an intrauterine disturbance, with delivery of baby the problem resolves. Many of the features of preeclampsia could arise from local or generalized maternal endothelial cell injury, mediated by substances released by the placenta. It is possible that mild and moderate hypertension enhances endothelial damage or its consequences [8]. Its medical treatment may be palliative but cannot be expected cure the condition. The choice of antihypertensive drug is dependent on its efficacy when administered orally and its freedom from fetal and maternal side — effects. (Michael, 1980 a) [9].

Our study is to compare the efficacy of labetalol vs methyldopa.

Demographic variables analysed in our study included age, BMI, parity, the BP at booking in the antenatal clinic and gestational age at admission in hospital. In our study (Table-IA) the average age was 27 years, which was not statistically significant. Although age was always used as a demographic variable it never had any statistically significant effect over the outcome of the study. BMI was also taken as a potential predictor to detect increased susceptibility to develop subsequent preeclampsia. In our study (Table-IA,) the mean BMI was 25 in both the groups where it was non-significant and no comments were made regarding any significant relation of BMI with development of preeclampsia.

In our study the sample population was divided on the basis of parity. 47% and 49% of the total population being primigravida in the labetalol group and methyldopa group respectively (Table- 1B). Out of 150 patients 36 were primigravida in Group A and 37 were in Group B.

While analyzing the blood pressure details in our study effective control of BP Jin Group A was achieved at approximately 1 week and in Group B at 2 weeks (Table-2A,). The mean highest BP attained was 103.95mm Hg and 1 13.06 mm Hg in the two groups respectively (Table-6). The mean duration of therapy which directly translated into longer duration of pregnancy was 5.4 weeks in Group A and 4.8 weeks in the other Group B (Table-6,) however almost 16% patients receiving methyldopa required additional drugs whereas only 8% getting labetalol required additional drug therapy (Table-7). Use of labetalol is more efficacious for control of BP with statistical significance <0.001.

Intrapartum and Postpartum control of BP was significantly better in Group A compared to Group B (Table-2 B, C). During postpartum period up to 48 hrs on analysis the MAP was significantly lower with P value <0.001 (95%C.I:-6.63;-5.46) in Group A controlled by Labetalol. However the duration of therapy was similar in both the groups. The daily average BP of each group until delivery also indicates that BP control was better in the group treated with labetalol. According to the Cochrane review of Antihypertensive drug therapy for mild to moderate hypertension during pregnancy[10] beta blockers appeared to be more effective than methyldopa in avoiding an episode of severe hypertension (RR 0.79; 95%Cl 0.63 to0.99).

Analysis of maternal outcome in our study reveals that majority of the pregnancies went beyond term (37weeks) in Group A when compared against Group B (Table-5). This was statistically significant (P<0.00I). Patients in Group B were more prone (P value < 0.001) to develop complications in the antenatal period when compared with Group A proteinuria (10.7%vs.2.6%), thrombocytopenia (10.7% vs. 2.6%), abnormal transaminases (8% vs. 2.6%), coagulation abnormalities (9.3% vs. 2.6%), onset of severe PIH (24% vs 4%) (table-3).Duration of therapy was also longer in Group A than Group B (5.4 weeks vs 4.8 weeks) (P<0.001). This directly translated into a longer continuation of pregnancy in Group A upto more than 37 weeks unlike Group B (P<0.00I), (Table 6). Side effects of methyldopa were also more frequently observed headache (37.2%) and drowsiness (25.6%.) however none were life threatening. Incidence of these side effects were significantly less in Group A (P<0.00I) (Table 4).

In our study on observation in the intrapartum period it was found that almost 16% patients developed pathological CTG in Group B, compared with 12% patients in Group A (Table-15). Although comparing the onset of labour, it was found that more patients in Group A entered labour spontaneously (29.3%). Thus in Group A out of 75 patients, 22 (29.3%) went into spontaneous labour, 70.6% were induced of which 10.6% delivered vaginally and 45 (60%) had to undergo caesarean section with maximum indications being for severe PIH (4%) and 32% for foetal distress.

No abruption case were recorded in Group A. But in Group B out of 75 patients, 7(10%) went into spontaneous labour,90% were induced of which 10% delivered vaginally and 60 (80%) underwent caesarean section which was significant (P<0.00I), (Table -9). Amongst which significantly most were due to severe PIH (20%) (P<0.00I), 2.6% and 37.3% being for abruption and foetal distress respectively (Table-10). The indications of sections pertaining to this study were only analyzed. 2 women in Group B developed eclampsia. (Table-11&Table-12).

While comparing the perinatal outcome in our study the number of IUGR and SGA babies were taken as confounded since apart from the effect of the drugs the disease itself has some effect regarding the development of IUGR and SGA babies thus after excluding these, no significant difference were found in the antepartum, intrapartum and postpartum monitoring of the babies in both the groups However the gestational age at which they were delivered in both the groups were significant (*P*< (Table-16). Almost the same proportion of babies were preterm with low Apgar scores <8 in 5mins with NICU admission for more than 9 days in both the group of patients received labetalol and methyldopa (Table-17). In our study there were 2 neonatal deaths and 1 stillborn. The neonates were monitored for the first 2 days by recording their heart rate, respiratory rate and blood glucose levels for assessing the perinatal outcome, however no significant effect were found of any of the drugs even after extensive monitoring (Fig 1, 2, 3).

Conclusion

Labetalol helped in quicker and more efficacious control of blood pressure in pregnancy induced hypertension .Good maternal outcome, less side effect, prolongation of pregnancy and maximum rate of spontaneous vaginal delivery were seen in Labetalol group. However none of the drugs (Labetalol and Methyldopa) had any edge over the other with respect to perinatal outcome.

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