MATERIAL AND METHODS

The present study was carried out at the Department of Obstetrics and Gynaecology Maharani Laxmi Bai Medical College, Jhansi covering a period from Jan 99 to December 99. The obstetric patients between 26-37 weeks of gestation carrying live fetus suffering from PIH attending antenatal clinic were recruited for this study.

PIH has been defined as sustained rise of blood pressure to 140/90 mm Hg or alone in a previously normotensive women or an increase in 30 mm Hg systolic or 15 mm Hg diastolic blood pressure over base line value after 15 minute rest on at least two occasions 6 or more hours apart (Williams 1992) or increase of MAP more than 103.3 mm Hg after 20th week of pregnancy (Redman 1982)

Fifty patients with PIH satisfying the above criteria with or without proteinuria or edema were included in this study.

In this study the cases were grouped into

I  Mild PIH - this group comprised of cases with blood pressure at or above 140/90 mm Hg but below 160/110 mm Hg and no significant proteinuria.

II  Severe PIH-Patients with blood pressure at or above 160/110 mm Hg with significant proteinuria

Detailed history of age parity socioeconomic status duration of gestation, mode of delivery, interval between deliveries, abortions, maternal complications, menstrual history, past history, personal history and special emphasis was given for detection of family history of hypertension. In parous women previous obstetric outcome was noted, specially asked for any incidence of hypertension and history of convulsion in previous pregnancy.
Blood pressure was measured by mercury sphygmanometer with patient lying down, comfortably on her bed. Error in recording the blood pressure was avoided as far as possible by using single instrument. The sphygmanometer cuff was applied on the upper arm at the level of heart. The point of muffling of Korokoff sound (point IV) was taken as the diastolic pressure.

Blood pressure was taken at the same time each day four hourly until stabilised and then twice per day until delivery.

Mean arterial pressure (MAP) was calculated by Burtton's formula

\[ \text{MAP} = \text{Systolic B.P} + 2 \times \text{Diastolic B.P} \]

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These patients after being admitted to the hospital were managed with:

1. Rest in lateral recumbency on her left side
2. Sedation to allay anxiety.
3. If repeat blood pressure continued to be high requiring antihypertensive drug therapy, the patients were given alpha methyl dopa or nifedipine after excluding contraindication for such therapy at the direction of the treating physician.

There were two groups

**Group A** - 25 patients in this group were treated with oral methyl dopa

Methyl dopa was started as 250 mg tablet bid after meal. An increment of 150 mg of drug was made every 24-48 hours till response up to a maximum of 2 gm/day in four divided doses.
Group B - 25 patients in this group were treated with oral nifedipine 10 mg bid. The dose was increased up to 120 mg/1 day. The patients in this group were multiparous in order to avoid the risk associated with the drug to be studied.

Patients were considered responders when blood pressure came down to <140/90 mm Hg or a MAP of 103. If the blood pressure control is not achieved by the maximum doses of methyldopa or nifedipine additional antihypertensive drugs eg. atenolol and lasix were added.

In cases of acute hypertension eg. diastolic blood pressure 110 mm Hg sublingual nifedipine 5 mg was used to bring down the blood pressure, if the patient did not respond inspite of adding sublingual nifedipine she was evaluated for the termination of pregnancy.

Clinical Examination

In all patients the time of onset of hypertension was noted. The cases were examined thoroughly between 8 A.M. to 9 A.M. under basal conditions. Pedal edema was detected by applying pressure on medial malleolus for 5 seconds. Height, weight and presence of oedema were noted and a meticulous general examination was carried out. Patients were asked to count fetal movements for three hours a day and to maintain a kick chart. Abdominal girth at the level of umbilicus, height of fundus above the symphysis pubis was noted every week. In suspected cases of IUGR, ultrasonography was done.

Every patient was screened for proteinuria. Urine was collected in a sterile test tube and screened for protein by dipstick test. Before collecting urine sample patient was instructed not to drink large quantity of fluid, if it
showed that proteinuria was 2 plus or more it was regarded as significant and if it showed 1 plus or trace, it was regarded as non-significant. Quantitative estimation of protein by Esbach's method was carried out if significant proteinuria was detected by dipstick test.

Routine investigations like Hb% estimation, bleeding time, clotting time, urine examinations, ABO grouping and Rh typing, platelets counts, VDRL blood sugar (fasting and postprandial) were done in each patient.

Blood urea, creatinine, uric acid, SGPT, alkaline phosphatase, albumin were estimated in serum.

In ophthalmological examination fundus oculi examination by ophthalmoscope was performed at admission and then weekly. Both pupils were dilated by putting of 1% tropicamidie solution in each eye at 15 minutes interval. In case of any change in optic fundus, ophthalmoscopic examination was repeated every week to note any fresh change or regression of any previous change till the patient was discharged from the hospital.

The changes in the optic fundus are graded according to American Ophthalmological society:

Grade 0 - Normal fundus

Grade 1 & 2 - characterised by slight or moderate degree of reflex strip arteries, venous narrowing and spasm-the stage of vasopasm

Grade 3 - Above changes with edema, haemorrhage and exudate

Grade 4 - Papilledema

Antenatal and intranatal fetal and maternal monitoring including changes in blood pressure and other complications encountered were assessed.

For diagnosing the complications as early as possible particular emphasis were given for the symptoms of headache, epigastric pain, visual distur-
bance, oliguria, decreased fetal movements

The signs of complications of eclampsia, pulmonary edema, cerbrovascular accident, hepatic and renal disorders, DIC, placental abruption and intraterine fetal death were carefully searched

Maturity of the fetus was determined by the first day of LMP, careful palpation of fundal height and ultrasonography. The pregnancy was not allowed to cross the expected date of delivery, in any case.

All clinical decisions regarding the time and mode of delivery were left to the attending doctors of respective unit but a general principle was followed in both the groups.

Labour was induced by artificial rupture of membrane followed by oxytocin infusion. Caesarean section was done either for obstetrical reasons or when the condition of the mother or the fetus was deteriorated.

Termination of pregnancy was considered in severe preclampsia when
Blood pressure persistently 160/100 mm Hg or greater despite treatment
Urine output < 400 ml in 24 hr
Platelet counts < 50,000/mm$^3$
Progressive increase in serum creatinine
Severe IUGR with oligohydramnios
Decreased fetal movements

Expectant management of severe eclampsia less than 36 wks was done by
Bed rest
Daily weight
Antihypertensive treatment
weekly Betamethasone
Liver, renal and haematologic evaluation on alternate day
Daily questioning about headache, visual disturbances epigastric pain and fetal movements

Daily NST

Daily fetal movements count

Fluid volume every week

Ultrasound for growth every 2 weeks

Management of patients with mild and moderate preclampsia was done according to the gestational age and fetal lung maturity

Maternal monitoring was done by

Measurement of blood pressure at least 4 times a day

Measurement of body wt every other day

Measurement of quantitative urinary protein with albustix in the first urine specimen every morning

Measurement of creatinine clearance every week

Measurement of biochemical profile twice a week

Daily questioning about fetal movements, development of scotoma or headaches and presence of epigastric or right upper quadrant pain

Fetal monitoring was done by

Fetal biometry (Biparietal diameter, head circumference, abdominal circumference and femur length) on admission to the hospital and every 3 weeks thereafter,

Evaluation of amniotic fluid volume twice weekly

NSTS at least every week

Determining the L/S ratio when pregnancy reaches 36 weeks

If at any time during the period of observation the clinical and laboratory studies indicate that the patient condition is deteriorating or not improving,
she must be delivered without consideration of the gestational age or fetal lung maturation

In mild cases of preeclampsia elevation of the blood pressure to a moderate range between 100 to 110 mm Hg diastolic was the most common indication of delivery

In mild cases of preeclampsia excessive weight gain, elevation of BUN, creatinine or uric acid level and decreased creatinine clearance were not indication of delivery unless they occurred simultaneously with elevated diastolic blood pressure

After delivery the gestational age of the baby, birth weight, Apgar score at 1 minute and 5 minute were noted. The development of any complications in the babies of both the groups e.g. respiratory distress syndrome, jaundice, and hypoglycemia were recorded

For diagnosis of hypoglycemia heel prick blood sample was examined for measurement of blood glucose concentration by dextrostix test

During puerperium blood pressure was recorded daily and the dose of anti hypertensive drug was adjusted accordingly. The patients were advised to report after 6 weeks post partum for follow up. Blood pressure was recorded, urine examined for proteinuria and ophthalmological examination done when required. The well being of the baby was enquired about

**Schedule for Antenatal Monitoring**

1. Blood pressure  
   4 hourly till control and then twice weekly
2. Input/output chart  
   Daily
3. Weight gain  
   Bi weekly
4. Urine albumin  
   Daily

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5  Symphysis fundal height
    and abdominal girth Weekly
6  Fundus oculi Weekly
7  Renal function test Weekly
8  Coagulation indices Biweekly
9  Fetal movement count Daily
10 Serial USG After 32 weeks
11 Placental function test
    NST Biweekly
    BFP Weekly