



OCULAR FUNDUS MANIFESTATIONS IN PREGNANCY INDUCED HYPERTENSION AT TERTIARY CARE CENTER, TELANGANA.

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ABSTRACT

Pregnancy induced hypertension is a disease entity where the blood pressure of the pregnant patient is more than or equal to 140/90mmHg. This raise of blood pressure can result in varying grades of changes in the eye.

AIM OF THE STUDY: To study the ocular fundus manifestations in patients with pregnancy induced hypertension.

METHODS AND MATERIAL: It is a hospital based prospective observational study, where 100 patients diagnosed with pregnancy induced hypertension attending the out-patient department of ophthalmology, Gandhi hospital, secunderabad from June 2017 to November 2017.

RESULTS: 38(38%) showed varying degrees of fundus changes- grade 1(21%), grade 2 (7%), grade 3 (1%), grade 4(7%), 1% of exudative retinal detachment.

CONCLUSION: Detailed fundus examination is important in PIH for early diagnosis to contribute to lesser complications.

KEYWORDS : Fundus manifestations, preeclampsia, eclampsia.

INTRODUCTION:

Pre-eclampsia (PE) is a disorder of pregnancy characterized by the onset of high blood pressure and often a significant amount of protein in the urine.^{[1][2]} When it arises, the condition begins after 20 weeks of pregnancy.^[3,4] In severe disease there may be red blood cell breakdown, a low blood platelet count, impaired liver function, kidney dysfunction, swelling, shortness of breath due to fluid in the lungs, or visual disturbances and can progress to HELLP syndrome.^[3,4] Pre-eclampsia increases the risk of poor outcomes for both the mother and the baby.^[3] If left untreated, it may result in seizures at which point it is known as eclampsia.^[5,6] The incidence of pre-eclampsia in hospital practice in India varies from 5% to 15% and that of eclampsia about 1.5%.^[7,8] In India, the prevalence of hypertensive disorders of pregnancy was 7.8% with pre-eclampsia in 5.4% of the study population.^[9]

Diagnostic criteria for preeclampsia includes^[10,11,12,13]

- Blood pressure ≥ 140 mmHg systolic or ≥ 90 mmHg diastolic on two separate readings taken at least four to six hours apart after 20 weeks' gestation in an individual with previously normal blood pressure.
- In a woman with essential hypertension beginning before 20 weeks' gestational age, the diagnostic criteria are: an increase in systolic blood pressure (SBP) of ≥ 30 mmHg or an increase in diastolic blood pressure (DBP) of ≥ 15 mmHg.
- Proteinuria ≥ 0.3 grams (300 mg) or more of protein in a 24-hour urine sample or a spot urinary protein to creatinine ratio ≥ 0.3 or a urine dipstick reading of 1+ or greater (dipstick reading should only be used if other quantitative methods are not available).^[3]

Pre-eclampsia is divided into two groups according to its severity, mild and severe. Blood pressure $>160/110$ mm of Hg and proteinuria > 2 gm/24 hours or $> + 2$ are included in severe pre-eclampsia^[5]

Among the various organ systems affected, changes can also be seen as ocular manifestations. Although visible retinal vascular changes occur in 40 to 100% of preeclamptic patients, visual symptoms are reported in 25 to 50%. These symptoms tend to

worsen with increasing disease severity, include blurred or decreased vision, photopsia, scotomata, diplopia, visual field defects, and blindness^[14,15] The most common ocular finding is constriction or spasm of retinal arterioles, with a decreased retinal artery-to-vein ratio correlating with severity. If the constriction is severe, changes associated with hypertensive retinopathy may occur, including diffuse retinal edema, hemorrhages, exudates, and cotton-wool spots.^[16]

Other ocular abnormalities seen in preeclampsia and eclampsia include white-centred retinal haemorrhages, papillophlebitis, Elschnig spots, macular edema, retinal pigment epithelial (RPE) lesions, retinal artery and vein occlusion, optic neuritis, optic atrophy, and ischemic optic neuropathy^[17]

Exudative (or serous) retinal detachment occurs in less than 1% of patients with preeclampsia and in 10% with eclampsia, although preeclamptic and eclamptic women with HELLP syndrome (hemolysis/elevated liver enzymes/low platelet count) may be approximately seven times more likely to develop a retinal detachment than those who do not have the syndrome.^[15,18,19]

Exudative retinal detachment tends to be bilateral, diagnosed postpartum, more frequent in primiparous women, and more common in women who undergo cesarean delivery; it tends to resolve completely postpartum^[15] The RPE usually resorbs the subretinal fluid postpartum, and visual acuity typically returns to predetachment levels within weeks. Presence of macular edema or papilloedema or retinal detachment are the warning signs for termination of pregnancy to save the vision of the mother^[20]

METHODS AND MATERIAL:

This is a hospital based prospective observational study on PIH patients attending the out patient department of ophthalmology, Gandhi hospital, secunderabad from June 2017 to November 2017. A total of 100 patients were identified; a standard proforma detailing name, age, number of conceptions (parity), blood pressure recordings, amount of proteinuria in terms of mg in a 24hour urine sample, visual acuity charting, findings of fundus examination after

instillation of tropicamide 0.5% drops using indirect ophthalmoscopy with +20D lens, slit lamp examination with +90D for detecting posterior segment pathologies and also related investigations were taken into consideration.

The retinal changes (hypertensive retinopathy) were graded according to Keith Wagener classification into: Grade I – mild generalized arterial attenuation, particularly of small branches; Grade II – more severe grade I + focal arteriolar attenuation; Grade III – grade II + haemorrhages, hard exudates, cotton wool spots; Grade

IV – grade III = optic disc swelling (papilloedema)^[21]

Inclusion criteria: 100 patients with PIH.

Exclusion criteria: patients with chronic hypertension.

RESULTS:

A total of 100 patients were identified with pregnancy induced hypertension with 38% showing ocular fundus changes. Further investigations of the selected group of patients show the following results as shown in table 1, where n=100 and fig 1 and 2 in all cases.

Table. 1

Age		Gravida				Blood pressure		Proteinuria		Vision		Diagnosis		
<35	>35	Primi	G ₂	G ₃	G ₄	>140/90	>150/100	+ve	-ve	6/6-6/18	6/24- PL	PE	ECC	Post partum
60%	40%	47%	31%	13%	9%	43%	57%	90%	10%	79%	21%	73%	22%	5%

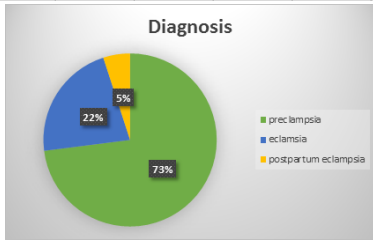


Fig. 1

FUNDUS HYPERTENSIVE RETINOPATHY.

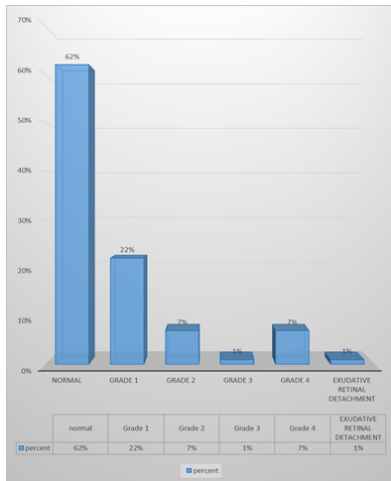


Fig. 2.

DISCUSSION:

The prevalence of hypertensive retinopathy is 32.5% as per a study done in Malaysia involving 154 PIH patients.^[22]

According to a study conducted in Hospital Tuanku Jaafar, Seremban, Malaysia; hypertensive retinopathy was noted in 46 (59%) patients out of 78 patients diagnosed with PIH - grade I in 41 (52.6%) and grade II in 5 (6.4%). Haemorrhages or exudates or retinal detachment were not seen in any patient.^[23]

Another study in Croatia included 40 women, 18 (45%) had ophthalmologically verified hypertensive retinopathy. 10 were classified as grade I, 6 as grade II and 2 as grade III. The degree of retinopathy was directly proportional to severity of preeclampsia. They stated that hypertensive retinopathy is a valid and reliable prognostic factor in determining the severity of preeclampsia; examination of fundus is a valuable and necessary diagnostic procedure in pregnant women with preeclampsia.^[24]

In a study done in 2010, Nepal, Fundus changes were found in only 13.7% of the subjects^[25].

A similar study was done in Karnataka in 2017, out of the 423 patients with PIH, the prevalence of retinal changes (hypertensive

retinopathy changes) was noted in 181 (42.7%) patients---grade 1 = 32.1%, grade 2 = 4.3%, grade 3= 2.1%, grade 4= 4.3% with no incidence of exudative retinal detachments (ERD).^[26]

A study done in Gujrat in 2018, of 75 PIH patients, hypertensive retinopathy was noted in 25 (33.33%) patients --- grade I in 19 (25.33%) and grade II in 4 (5.33%). Haemorrhages or exudates were seen in 1 (1.33%) patient and retinal detachment was seen in 1(1.33%) patient. There was a statistically significant positive association between retinal changes and blood pressure, proteinuria and severity of the PIH.^[27]

COMPARISION BETWEEN VARIOUS STUDIES.

Table 2.

STUDY DONE	TOTAL (n)	PIH %	GRADE 1 %	GRADE 2 %	GRADE 3 %	GRADE 4 %	ERD %
Malaysia [22]	78	59	52	6.4	0	0	0
Croatia [27]	40	45	25	15	5	0	0
Gujrat, India [24]	75	33	25	5	0	1	1
Karnataka, India [26]	423	42	32	4.3	2.1	4.3	0
Present study	100	38	22	7	1	7	1

CONCLUSION:

In the present study, the prevalence of fundus changes in comparison with the Studies done previously shows a proof that proper antenatal check-ups combined with regular visits to the ophthalmologists can decrease the severity of complications of pregnancy induced hypertension.

DISCLOSURE:

The conflicts of authors disclose no potential interest. There is no financial interest behind this study

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