

ORIGINAL ARTICLE**Ocular manifestations among patients with Pregnancy Induced Hypertension**

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ABSTRACT:

Background: To assess ocular manifestations in patients with pregnancy induced hypertension (PIH). **Materials & methods:** One hundred subjects patients who were diagnosed with suffering from pregnancy induced hypertension were enrolled. Complete demographic and clinical details of all the subjects was obtained. Torch light was used for carrying out examination of anterior segment. Pupils were dilated with tropicamide and fundus examination was carried out with indirect ophthalmoscope. Assessment of results was done using SPSS software. **Results:** Defective vision and macular oedema were seen in 10 percent and 12 percent of the subjects respectively. Lid oedema and choroidal infarcts were seen in 5 percent and 3 percent of the subjects. Arteriolar narrowing was seen in 11 percent of the patients. Overall, ocular manifestations were seen in 33 percent of the patients. **Conclusion:** From the above results, the authors conclude that ocular changes are associated with significant proportion of patients with PIH.

Key words: Pregnancy induced hypertension, Ocular

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INTRODUCTION

Hypertensive pregnancy disorders cover a spectrum of conditions, including preeclampsia/eclampsia, gestational hypertension, chronic hypertension, and preeclampsia superimposed on chronic hypertension. According to the National High Blood Pressure Education Program (NHBPEP) Working Group Report on High Blood Pressure (BP) in Pregnancy, hypertension occurs in 6–8% of pregnancies in the United States.¹⁻³ Hypertensive pregnancy disorders represent the most significant complications of pregnancy and contribute significantly to maternal and perinatal morbidity and mortality. Most of the current recommendations for the treatment of these disorders are based on expert opinion and observational studies, with a lack of evidence from randomized controlled trials. The overall strategy in the treatment of hypertension in pregnancy is to prevent maternal cerebrovascular and cardiac complications, while preserving the uteroplacental and fetal circulation and limiting medication toxicity to the fetus.⁴⁻⁶

The prevalence of hypertension in reproductive-aged women is estimated to be 7.7%. Hypertensive disorders of pregnancy, an umbrella term that includes preexisting and gestational hypertension, preeclampsia, and eclampsia, complicate up to 10% of pregnancies and represent a significant cause of maternal and perinatal morbidity and mortality. The terms, goals of therapy, and treatment agents have been long debated and remain controversial.¹⁻³ Pregnancy is associated with ocular changes, which

most often are transient in nature. Either preexisting conditions exacerbate it or may be associated with development of new conditions. The ocular effects of pregnancy can be either physiological or pathological. A very important pathologic entity, associated with a wide spectrum of ocular changes is hypertensive disorders of pregnancy (HDP) which mainly includes preeclampsia and eclampsia.⁴⁻⁶ Hence; the present study was undertaken for assessing ocular manifestations in patients with pregnancy induced hypertension.

MATERIALS & METHODS

One hundred subjects patients who were diagnosed with suffering from pregnancy induced hypertension were enrolled. Complete demographic and clinical details of all the subjects was obtained. Torch light was used for carrying out examination of anterior segment. Pupils were dilated with tropicamide and fundus examination was carried out with indirect ophthalmoscope. Assessment of results was done using SPSS software.

RESULTS

Mean age of the subjects was 29.7 years. 61 percent of the subjects were of urban residence. We observed presence of Defective vision and macular oedema in 10 percent and 12 percent of the subjects respectively. Lid oedema and choroidal infarcts were seen in 5 percent and 3 percent of the subjects. Arteriolar narrowing was seen in 11 percent of the

patients. Overall, ocular manifestations were seen in 33 percent of the patients.

Table 1: Ocular manifestations in patients with PIH

Ocular manifestations	Number of patients	Percentage
Defective vision	10	10
Macular oedema	12	12
Lid oedema	5	5
Choroidal infarcts	3	3
Arteriolar narrowing	11	11

DISCUSSION

Hypertension in pregnancy is diagnosed on systolic blood pressure greater than or equal to 140 mm Hg and/or diastolic greater than or equal to 90 mm Hg. The classification systems separate chronic and gestational hypertension from preeclampsia. Significant uncertainty regarding optimal management is reflected in the differing major international society recommendations. Blood pressure treatment is designed to minimize maternal end-organ damage. Methyldopa, labetalol, hydralazine, and nifedipine are oral options; angiotensin-converting enzyme inhibitors and angiotensin receptor antagonists are contraindicated. Women with preeclampsia should be closely monitored and receive intravenous magnesium sulfate. Impairment of visual acuity during pregnancy is supposed to be a rare occurrence; however, ocular changes include a wider spectrum of physiologic and pathologic conditions which might present different symptoms and require different treatments.⁷⁻⁹ Hence, the present study was undertaken for assessing ocular manifestations in patients with pregnancy induced hypertension.

We observed presence of Defective vision and macular oedema in 10 percent and 12 percent of the subjects respectively. Lid oedema and choroidal infarcts were seen in 5 percent and 3 percent of the subjects. Arteriolar narrowing was seen in 11 percent of the patients. The effect of hypertension extends to involve the vasculature of the retina, choroids and optic nerve head. At the pathophysiologic level, the primary response of the retinal vasculature to systemic arterial hypertension is vascular narrowing. This response to an increased blood pressure leads to focal or diffuse vasoconstriction. In addition, extravasation of fluid to the extravascular spaces occurs as a result of increased vascular permeability. Resultant retinal changes may manifest as decreased retinal to vein ratio, cotton wool spots, hemorrhages, Elschnig spots and serous retinal detachments. Jaffe and Schatz, found a significant relationship between reduced arteriole to vein ratio and preeclampsia, suggesting retinal vasospasm and resistance to blood flow as a possible explanation for visual symptoms. A measurable narrowing of the retinal arteries can be

demonstrated in about 50% of uncomplicated pregnancies with physiologic increase in blood pressure. This narrowing is functional and disappears with the termination of pregnancy. The degree of narrowing ranges from 10% to 40%, thus it is very difficult to discriminate between a normal and mild preeclamptic patient based on funduscopy. Retinal changes due to severe preeclampsia are similar to the changes of hypertensive retinopathy without the organic changes of arteriolosclerosis.⁹⁻¹²

Overall, ocular manifestations were seen in 33 percent of the patients. Reddy SC et al determined the prevalence of retinal changes in pregnancy induced hypertension (PIH) and any association between the retinal changes and blood pressure, proteinuria, and severity of the disease. All the patients admitted with diagnosis of PIH were included in their study. Age, race, gravida, gestation period, blood pressure, and proteinuria were noted from the case records. After taking history for any eye symptoms, fundus examination was done after dilating the pupils with direct ophthalmoscope in the ward itself. All the findings were noted on a data sheet, and were analyzed using SPSS programme. A total of 78 patients of PIH were examined. Majority (75.6%) were Malays. The mean age of patients was 30.2 years (range 21-45 years). The gestation period ranged from 25 weeks to 41 weeks; 34 (43.5%) were primi gravida. Thirty (38.4%) patients had mild preeclampsia, 46 (59%) had severe preeclampsia and 2 (2.5%) had eclampsia. Retinal changes (hypertensive retinopathy) were noted in 46 (59%) patients --- 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. There was statistically significant positive association of retinal changes and blood pressure ($P=0.001$), proteinuria ($P=0.018$) and severity of the PIH ($P=0.024$). Retinal changes (grade I and II hypertensive retinopathy) were seen in 59% of patients with PIH and they were significantly associated with blood pressure, proteinuria and severity of the disease.¹³

CONCLUSION

From the above results, the authors conclude that ocular changes are associated with significant proportion of patients with PIH.

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