

Original Research

Evaluation of ocular manifestations among patients with Pregnancy Induced Hypertension

¹Dr. Eshani Gupta, ²Dr. Sumit Singh Chauhan, ³Dr. Vibham Gulati, ⁴Dr. Priyanka Parmar

^{1,2}Medical Officer, MS Ophthalmology, Regional Hospital, Bilaspur, Chhattisgarh, India;

^{3,4}MS Ophthalmology, Indira Gandhi Medical College, Shimla, Himachal Pradesh, India

ABSTRACT:

Background: Pregnancy is associated with ocular changes, which most often are transient in nature. 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.⁷⁻⁹Hence; the present study was undertaken for assessing ocular manifestations in patients with pregnancy induced hypertension. **Materials & methods:** Assessment of 50 patients who were diagnosed with suffering from pregnancy induced hypertension were enrolled. Complete demographic and clinical details of all the subjects was obtained. Criteria described previously in the literature was used for identification of patients with pregnancy induced hypertension. 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. **Results:** We observed presence of Defective vision and macular oedema in 16 percent and 12 percent of the subjects respectively. Lid oedema and choroidal infarcts were seen in 2 percent of the subjects each. Arteriolar narrowing was seen in 12 percent of the patients. Overall, ocular manifestations were seen in 28 percent of the patients. **Conclusion:** Approximately one third of population of PIH demonstrate ocular symptoms.

Key words: Pregnancy induced hypertension, Ocular

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Corresponding author: Dr. Sumit Singh Chauhan, Medical Officer, MS Ophthalmology, Regional Hospital, Bilaspur, Chhattisgarh, India

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INTRODUCTION

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

The hormonal changes of pregnancy induce significant adaptations in the cardiovascular physiology of the mother. Beginning early in the first trimester, there are surges of estrogen, progesterone, and relaxin (hormone that, like progesterone, mediates nitric oxide release), leading to systemic vasodilation. Concurrently, the renin-angiotensin-aldosterone system (RAAS) is augmented to engender salt and water retention, leading to an

expansion in plasma volume. This, combined with an increased ventricular wall mass, leads to an increased stroke volume. The expansion in plasma blood volume also results in a physiologic anemia, as the rate of increase is faster than that of the increase in red blood cell mass.³⁰ In order to compensate for the aforementioned systemic vasodilation and physiologic anemia, heart rate raises. The combination of elevated stroke volume and tachycardia leads to an increase in cardiac output during pregnancy, which compensates for the decline in vascular resistance in order to maintain blood pressure at high enough levels for maternal and placental perfusion. It is plausible that women with hypertension preconception may naturally fall out of the indicated treatment range during pregnancy.⁴⁻⁶ 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.⁷⁻⁹Hence; the present study was undertaken for assessing ocular manifestations in patients with pregnancy induced hypertension.

MATERIALS & METHODS

Assessment of 50 patients who were diagnosed with suffering from pregnancy induced hypertension were enrolled. Complete demographic and clinical details of all the subjects was obtained. Criteria described previously in the literature was used for identification of patients with pregnancy induced hypertension. 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. Only those subjects were assessed which participated in the study willingly. All the results were recorded and analysed by SPSS software.

RESULTS

Mean age of the subjects was 28.4 years. Majority of the subjects were of urban residence. We observed presence of Defective vision and macular oedema in 16 percent and 12 percent of the subjects respectively. Lid oedema and choroidal infarcts were seen in 2 percent of the subjects each. Arteriolar narrowing was seen in 12 percent of the patients. Overall, ocular manifestations were seen in 28 percent of the patients.

Table 1: Ocular manifestations in patients with PIH

Ocular manifestations	Number of patients	Percentage
Defective vision	8	16
Macular oedema	6	12
Lid oedema	1	2
Choroidal infarcts	1	2
Arteriolar narrowing	6	12

DISCUSSION

Severe preeclampsia in pregnancy is a systolic blood pressure ≥ 160 mmHg or diastolic blood pressure ≥ 110 mmHg or both. Eclampsia is a severe type of pregnancy induced hypertension, and it happens in about one in 1,600 pregnancies and develops near the end of pregnancy. The three primary characteristics of pregnancy induced hypertension conditions are high blood pressure, protein in the urine and pathologic edema.⁶⁻⁸

Pregnancy induced hypertension is a major contributors to maternal and perinatal morbidity and mortality. In the United States, about 15% of

maternal deaths are attributable to hypertension, making it the second leading cause of maternal mortality. Severe hypertension increases the mother's risk of cardiac failure, heart attack, renal failure and cerebral vascular accidents. In addition, the fetus is at increased risk from complications like poor placental transfer of oxygen, growth restriction, preterm birth, placental abruption, stillbirth and neonatal death. Hypertensive disorders represent the most common medical complications of pregnancy with a reported incidence of 5–10%.⁷⁻⁹ 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. Ocular changes during pregnancy occur due to physiological responses to cope with the gestational product. While up to 15% of these pregnancy-induced changes are benign, a few pathological conditions might affect the eyes. On the other hand, the severity of these ocular changes is largely affected by the health status of the pregnant women, e.g. in a diabetic or hypertensive pregnancy.⁸⁻¹⁰Hence; the present study was undertaken for assessing ocular manifestations in patients with pregnancy induced hypertension.

Mean age of the subjects was 28.4 years. Majority of the subjects were of urban residence. We observed presence of Defective vision and macular oedema in 16 percent and 12 percent of the subjects respectively. Lid oedema and choroidal infarcts were seen in 2 percent of the subjects each. Muti M et al conducted a study to determine the prevalence of PIH and pregnancy outcomes among women with PIH. Records were reviewed for pregnancy outcomes while key informants were also interviewed on patient management. PIH prevalence was 19.4 %. Women with PIH were three times more likely to deliver a low-birth-weight baby, 4.3 times more likely to have still birth and four times more likely to have a baby with low Apgar score at 5 minutes compared to women without PIH. Delay in seeking care and shortage of resources were the major reported challenges in the proper management of PIH. PIH prevalence was high. Women with PIH were at higher risk of adverse pregnancy outcomes than those without.¹¹

In the present study, arteriolar narrowing was seen in 12 percent of the patients. Overall, ocular manifestations were seen in 28 percent of the patients. Naderan M et al summarized available literature on physiologic and pathologic ocular changes during pregnancy. Ocular changes occur commonly during pregnancy. Although most of these are benign physiologic responses to the metabolic, hormonal, and immunologic modifications to adapt the gestational product, there is some serious pathology that may develop, exacerbate, or even resolve over the course of pregnancy which requires prompt diagnosis and management. Irrespective of

the visual health status of the pregnant women, regular perinatal eye examination should be scheduled in order to assure continuous surveillance of healthy eyes. Treatment of pathologic ocular conditions or functionally disturbing benign changes relies on an appropriate patient selection. Discriminating pathological eye disease from physiologic ocular changes is important in order to establish an individualized treatment or preventive plan and constitutes the mainstay of obstetric ophthalmology.¹²

CONCLUSION

Approximately one third of population of PIH demonstrate ocular symptoms.

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