Original Article

Hypertensive Retinopathy in Pregnancy

Prevalence of Hypertensive Retinopathy in Patients with Pregnancy Induced Hypertension

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ABSTRACT

Objective: To investigate prevalence of hypertensive retinopathy in patients with pregnanacy induced hypertension and association between retinal changes and severity of PIH

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Mola Baksh Hospital, Sargodha which is a maternity wing of DHQ Teaching Hospital Sargodha from July 2017 to December 2017.

Materials and Methods: After taking the informed consent from the patients their blood pressure were recorded, urine examination reports were taken to document protein uria. Name, age, date of admission and gravidity were recorded on a proforma. Tropicamide 1% eye drops were instilled into the patient's eyes to dilate the pupils. Once dilated direct ophthalmoscopy was done to visualize the fundus and the signs of hypertensive retinopathy. All findings were noted on a data sheet.

Results: 100 pregnant women with diagnosed pregnancy induced hypertension were included in the study. 36 were primigravida while 64 were multigravida. Out of 100 patients 88 (88.00%) were diagnosed with pre-eclampsia while 12 (12.00%) with eclampsia. Amongst pre-eclampsia patients 58(65.91%) had signs of hypertensive retinopathy on fundoscopic examination while amongst eclampsia patients 5(41.67%) had these signs present. In total 63(63.00%) patients out of 100 had signs of hypertensive retinopathy while in 37(37.00%) patients these were absent. .

Conclusion: Signs of hypertensive retinopathy are commonly found in pregnancy induced hypertensive patients and are important indicator of severity of disease.

Key Words: Pre-eclampsia, eclampsia, Prenancy induced hypertension, hypertensive retinopathy

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INTRODUCTION

Hypertensive retinopathy is retinal vascular damage caused by hypertension. Acute blood pressure elevation typically causes reversible vasoconstriction in retinal blood vessels and hypertensive crisis may cause optic disk edema .Fundoscopic examination shows arteriolar constriction, arteriovenous nicking, vascular wall changes, flame-shaped hemorrhages, cotton-wool spots, yellow hard exudates, and optic disk edema. Acute hypertension is associated with pregnancy include Pre-eclampsia & Eclampsia.

Pregnancy induced hypertension(PIH) is a hypertensive disorder in pregnancy that occurs in absence of other causes of hypertension.PIH consists of pre –eclampsia and eclampsia.

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Pre-eclampsia is defined as presence of hypertension (BP≥140/90 mmHg) and proteinuria (300 mg or more in 24 hour urine) after 20 weeks of gestation[1]. Eclampsia is defined as onset of convulsions in a woman with pre-eclampsia that cannot be attributed to other causes[2].

Pre-eclampsia and eclampsia are the disorders solely associated with pregnancy. Pre-eclampsia is a multi-system disorder that arises from placenta. According to Roberts et al main reason of it is maternal endothelial dysfunction which ultimately leads to diverse clinical manifestations[3]. Ophthalmoscopic changes occur mostly in severe disease. Amongest these changes most common is vasoconstriction of the retinal arterioles[4,5]. These changes however resolve immediately after delivery[6]. Statistically, about 5-11% of all the pregnant women develop hypertensive disorders(pre-eclampsia & eclampsia) and amongst these 40-100% have retinal changes in them[7,8]. Worldwide PIH results in nearly 10-15% maternal deaths[9] while in Pakistan it is among the leading cause of maternal death[10].

Opthalmoscopic changes mainly occur due to loss of autoregulation phenomenon in retinal vessels that occur at diastolic blood pressure of 100mmhg or above. Aim of this study was to determine the presence of these changes among pregnant women,

difference of their prevalence among primigravida and multigravida.

MATERIALS AND METHODS

This cross-sectional study was carried out at MolaBaksh Hospital Sargodha which is a maternity wing of DHQ Teaching Hospital Sargodha. In this study only those patients were included who were pre-diagnosed with PIH as per the standard definition.

Patients with pre-existing hypertension, diabetes, renal disease and cataract were not included in this study. After taking informed consent from patients, tropicamide 1% eye drops were instilled into patients eyes at rate of one drops per 15 min until pupils were dilated, patients' name, age, weeks of gestation, date of admission, blood pressure, proteinuria, gravidity, funduscopic findings and pregnancy outcome were noted on a performa.

Fundoscopic examination was carried out in dark room using direct ophthalmoscope and both eyes were examined to find the funduscopic changes due to PIH. Once the data was collected, data was compiled and analyzed. Results were statistically confirmed using Minitab 17.1.0 in two different tests.

RESULTS

All this data after being input into Minitab 17.1.0 gave following statistical results. Former is the Chi-Square test applied to find the prevalence of hypertensive retinopathy in patients with pre-eclampsia and eclampsia in our target population .P value less than 0.05 was considered significant.

Total of 100 patients were examined, out of these 36 (36.00%) were primigravida while 64 (64.00%) were multigravida. Their average age was 24.6 years, average blood pressure noted was 170/100mmHg, average age of gestation was 38 weeks+ 5 days. Total number of patients with pre-eclampsia were 88 (88.00%) and 12 (12.00%) had eclampsia. Out of 88 patients of pre-eclampsia; 58(65.91%) patients had positive fundoscopic findings while 30(34.09%) patients had normal fundus (Table 1). Amongst 12 patients with eclampsia; 5(41.67%) patients had positive fundoscopic findings while 7(58.33%) patients had normal fundus.

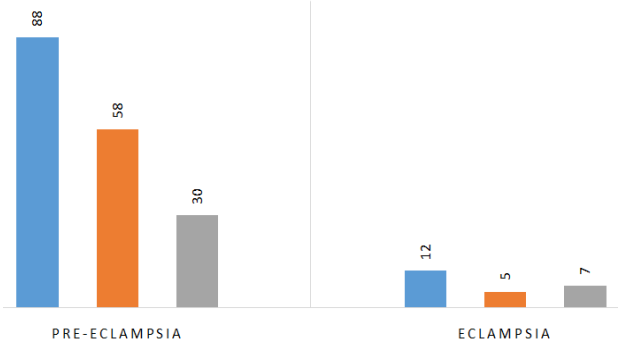
Narrowing of arterioles and dot blot hemorrhages were consistently found in all the patients with positive fundoscopic findings. Outcomes of the ongoing pregnancies was also noted.

In total; 63(63.00%) patients had positive signs of hypertensive retinopathy while 37 (37.00%) patients had normal fundus.

Table No.1: Details of Patients having positive or normal fundus with percentage.

	Total=100	Patients with positive findings	Patients with normal fundus
Pre-eclampsia	88(88.00%)	58(65.91%)	30(34.09%)
Eclampsia	12(12.00%)	5(41.67%)	7(58.33%)

Following bar chart 1.1 exhibits prevalence of hypertensive retinopathy among target population of 100.



Bar Chart No.1: Prevalence of Pre-eclampsia and eclampsia among target population of 100.

DISCUSSION

Pregnancy induced hypertension(PIH) is a leading cause of maternal mortality and morbidity in developing countries.[11]PIH affects all blood vessels in the body including placental blood vessels.[12]It can lead to fetal and maternal complications if not treated properly.[13]

Hypertensive retinopathy is a disease of retinal and choroidal vasculature that can occur in acute as well as chronic hypertension. Retinal vasculature is auto-regulated but whenever diastolic blood pressure exceeds 110-115mmHg this auto-regulation is lost. This results in damage to retinal vasculature leading to subsequent ischemic necrosis which manifests as cotton wool spots(Ischemia to nerve fibers), uniform narrowing of arterioles, flame & dot-blot hemorrhages and sometimes papilledema. The potential complications of hypertensive retinopathy in pregnancy are development of central serous chorio-retinopathy (CSCR) and serous retinal detachment[14].

Ophthalmoscopic changes are common in hypertensive disorders of pregnancy. These hypertensive disorders have a much less incidence in developed countries like US where it is merely 4%[13].While in Pakistan it is much higher. In our study we examined 100 patients who already had been diagnosed with pre-eclampsia/eclampsia. We found a significantly high incidence of hypertensive retinopathy in these patients i.e; 63%. The results of our study show significant association between level of

PIH and hypertensive retinopathy. But this is in contrary to study of Tadin et al as they showed a significant correlation between PIH and hypertensive retinopathy.[15] Therefore, fundoscopic examination should be carried out in patients having these acute hypertensive changes of pregnancy not only to assess the risks associated with the outcome of pregnancy but also to avoid the potential serious ophthalmic complication.

CONCLUSION

Routine fundoscopic examination should necessarily be done in patients with PIH(pre-eclampsia and eclampsia) so that measures should be taken before hand in managing the ophthalmic status of the patient and maternal well-being.

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Author's Contribution:

Concept & Design of Study:	Nasrullah Khan
Drafting:	Raza Farrukh, Nasrullah Khan
Data Analysis:	Raza Farrukh, Muhammad Zubair
Revisiting Critically:	Nasrullah Khan, Raza Farrukh, Muhammad Zubair
Final Approval of version:	Nasrullah Khan

Conflict of Interest: The study has no conflict of interest to declare by any author.

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