



**ORIGINAL RESEARCH PAPER**

**Ophthalmology**

**RETINAL CHANGES IN PREGNANCY INDUCED HYPERTENSION**

**KEY WORDS:** cervical lymphadenopathy, Fine needle aspiration cytology, Reactive Lymphadenitis, Granulomatous lesion, Lymphoma

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**ABSTRACT**

**Aim:** To determine the prevalence of retinal changes in pregnancy-induced hypertension (PIH). **Study design:** Hospital based retrospective study. **Materials and methods:** All patients who fulfilled the diagnostic criteria of PIH and who underwent treatment in PRG Hospital were included in the study. Age, obstetric score, BP, proteinuria and fundus findings were collected from the case records. PIH and retinal changes were graded. **Conclusion:** Occurrence of hypertensive retinopathy in PIH cases has been decreased due to better antenatal care and early detection and treatment of cases. There is a greater chance of developing retinopathy with increase in blood pressure, severity of PIH and proteinuria in cases of PIH.

**INTRODUCTION**

PIH, is a hypertensive disorder in pregnancy that occurs in the absence of other causes of elevated blood pressure (140/90 mmHg, or a rise of 30 mmHg of systolic pressure, or a rise of 15 mmHg of diastolic pressure), taken on two occasions after rest, in combination with generalized edema and/or proteinuria. Changes in the retinal arterioles may indicate a similar state of the placenta. Hence, it gives a reasonable idea of the state of placental circulation and fetal wellbeing. Fetal and maternal complications can be avoided if PIH is detected early. Vasospastic manifestations are reversible, and the retinal vessels rapidly return to normal after delivery.

Tadin et al, from Croatia had reported 45% of retinal changes in their study of 40 patients with PIH1. Reddy et al, from Malaysia found 59% of retinal changes in their study of 78 patients2.

**Materials and methods**

Hospital based retrospective study was done in PRG Hospital over a period of three years from Jan. 2017 – Dec.2019. All patients who fulfilled the diagnostic criteria of PIH and who underwent treatment in PRG Hospital were included in the study. Patients who had preexisting diabetes or hypertension or renal disease were excluded from this study. Age, obstetric score, BP, proteinuria and fundus findings were collected from the case records. PIH and retinal changes were graded according to Keith Wagener classification. Proteinuria was graded as + = 30 mg/dL, ++ = 100 mg/dL, +++ = 300 mg/dL and ++++ = > 2000 mg/dL and results were analysed.

**RESULTS**

Total of 15 patients with PIH were analyzed. The mean age of patients were 25.1 years (range 18 - 45 years). The gestational period ranged from 28 – 40 weeks. 8 were primigravida. Gestational hypertension was noted in 10 patients and pre-eclampsia in 5 patients. Headache was observed in 2 patients. Hypertensive retinopathic changes were noted in 3 patients (Grade 2). Haemorrhages, exudates or retinal detachment were not seen in any of the patients. There was association between retinal changes, BP, proteinuria and severity of PIH. Age and gravida were not associated with retinopathy changes.

**Table 1 Distribution of cases according to different variables**

Variable	No. of patients (n=15)
1 Age (years)	
<19	1
20 – 29	10
>30	4

2 Gravida	
Primi	8
G2	6
G3	1
3 GA in weeks	
28 – 32	3
>32	12
4 Severity of PIH	
GH	10
Pre-eclampsia	5
Eclampsia	0
5. Retinopathy Grading	
Grade 1	0
Grade 2	3

**Table 2 Association between retinal changes and different variables**

Variable	Retinopathy present (n=3)	Retinopathy absent (n=12)	Total (n=15)
Age (years)			
<19	0	1	1
20-29	2	8	10
>30	1	3	4
Gravida			
Primigravida	1	7	8
Multigravida	2	5	7
Blood pressure			
• <160mm Hg systolic & <100mm Hg diastolic	1	12	13
• >160mm Hg systolic & >100mm Hg diastolic	2	0	2
Severity of PIH			
GH	1	9	10
Pre eclampsia	2	3	5
Eclampsia	0	0	0
Proteinuria			
Nil	0	10	10
+	0	0	0
++	0	2	2
+++	2	1	3

**DISCUSSION**

PIH is one of the most common problems encountered in obstetrics. Mean age of patient in this study was 25.1 years which is similar to the study of Tadin et al1. In our study one patient in the age group of < 19 years did not develop retinopathy changes. While out of 10 patients in the age group of 20 – 29 years 2 cases showed hypertensive retinopathy changes. 4 cases were of age > 30 years and among them 1

case showed retinopathy changes. Age was not associated with retinopathy changes in this study which is similar to the results of Reddy et al2.

In our study of 15 patients with PIH 8 were primigravids and out of them only 1 patient developed hypertensive retinopathy. While out of 7 patients who were multigravida, 2 patients developed hypertensive retinopathy. Gravida was not associated with retinopathy changes which is similar to the results of Reddy et al2. Among 5 patients with pre-eclampsia, 2 patients had retinopathy. 1 out of 10 patients with gestational hypertension had retinopathy. Severity of PIH was associated with retinopathy which is similar to previous studies.(1,2,3,4).

In our study out of 3 cases that developed hypertensive retinopathy, all had grade 2 retinopathy changes. None of the patients developed haemorrhages, exudates or retinal detachment in our study similar to Jaffe and Schatz5 and Reddy et al2. This can be attributed to proper antenatal care and early detection of PIH cases thereby preventing them to progress to Grade 3 hypertensive retinopathy.

There was association between retinopathy changes and blood pressure readings in our study similar to Tadin et al1, Reddy et al2 and Karki et al3. Proteinuria was also associated with retinopathy similar to Reddy et al(2,4) and Karki et al3.

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