



A Study on Pregnancy Related Hypertensive Retinopathy at a Tertiary Eye Care Centre of Upper Assam

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ABSTRACT-

Background: Hypertensive retinopathy is one of the common complication met with pregnancy and may lead to permanent visual loss if untreated within a short period of time.(10)

STUDY DESIGN: This hospital based cross sectional study was carried out in Assam medical college and hospital.

MATERIAL &METHODS: A Total of 100 cases were included during 6 months period from September 2022 to February 2023. Patients who had visual disturbance were dilated with mydriatics(E/D tropicamide 0.4%). Fundus was examined with direct Ophthalmoscope, followed by indirect Ophthalmoscope using 20D lens in antenatal ward. Slit lamp examination using 90D lens was performed for those patients who were ambulatory.

RESULTS:100 patients with hypertension retinopathy in pregnancy, attending outpatient and inpatient department of Obstetrics & Gynaecology were studied for a period of 6 months from september 2022 to february 2023.The age group of the patients varied from ≤ 20 years to >35 years. The maximum noof patients were in the age group of 21-25 years. Normal fundus was seen in 54% patients. Grade 1 HR in 43.49%,grade2 in 39.13 %, in grade3& grade4 was seen in 8.69%.In the study, primigravida (39.1%) were affected from hypertensive retinopathy as compared to other gravida.

CONCLUSION: The development of hypertensive retinopathy is related to severity of hypertension with poor control of blood pressure.

KEYWORDS: Normal fundus, Ophthalmoscope (direct,indirect) slit lamp, Hypertensive retinopathy.

I. INTRODUCTION

Hypertensive retinopathy is defined as systolic blood pressure 140 mm of Hg or more, diastolic blood pressure of 90 mm Hg or more, both on at two occasions at least 4 hours apart, after 20 weeks of gestation in a women with previously normal blood pressure.(1) Pregnancy induced

hypertension with a. proteinuria (>300 mg/24 hour), b. Protein creatinine ratio > 0.3 , c. thrombocytopenia(platelet count <1 lakh), d. Renal insufficiency (Creatinine > 1.1)e. Abnormal liver function test(raised AST & ALT), f. Cerebral symptoms and pulmonary edema is termed as Pre-eclampsia.Pre-eclampsia complicated by convulsions is called eclampsia.(2).

Ocular manifestation in normal pregnancy include blurred vision, photopsia, scotoma and diplopia and that in hypertensive retinopathy same as normal pregnancy along with exudative retinal detachmentvitreous, pre retinal hemorrhages and hypertensive choroidopathy are also seen.(3)

Ocular involvement in Pre eclampsia and eclampsia occurs in form arteriolar attenuations, retinal changes, retinal detachment. It affects visual pathways, from the anterior segment to visual cortex.(3,4).These patients may have retinal hemorrhage, subretinal serous fluid accumulation, papilledema and Elsching spot. (3,5)

Complete blindness with eclampsia and pre eclampsia is rare, incidence of which is 1-3%.visual symptom occur upto 25% in patients of preeclampsia and 50% in patients eclampsia.(3,4)

OBJECTIVES:

➤ To assess retinal changes in pregnancy related hypertensive retinopathy.

II. MATERIALS AND METHODS

A study on "Pregnancy related hypertensive retinopathy at Assam medical college& hospital" was carried out for a period of 6 months from September 2022 to February 2023 was included. All patients undergo thorough clinical evaluation including history, general and local ophthalmological examination. Best corrected visual acuity was recorded by using Snellen's visual acuity chart.

Inclusion Criteria:

➤ All cases of pregnancy induced hypertension attending the Outpatient and inpatient department of Obstetrics & Gynaecology



- All pregnancy induced hypertensive women (above 20 weeks of gestation)
- Those who give informed consent.

Exclusion criteria:

- Pregnant women having essential hypertension or chronic hypertension
- Pregnant women having secondary causes of hypertension.(collagen vascular disease).
- Patients who do not give consent.

Instruments for data collection were:

Sphygmomanometer, Snellen’s Visual acuity Chart, slit lamp bio microscopy using +90D lens, direct Ophthalmoscope , indirect Ophthalmoscope with +20D lens, digital fundus camera, Optical coherence tomography.

The blood investigations were carried out if required:

Routine blood examination, blood sugar estimation, hbA1c levels, serum creatinine, blood Urea.

OCULAR FUNDUS EXAMINATION:

Patients who had visual disturbance were dilated with mydriatics (E/D tropicamide 0.5%). Fundoscopy was then examined initially with direct Ophthalmoscope, followed by bimanual Indirect Ophthalmoscope using 20D lens in antenatal ward

and slit lamp examination using 90D lens was performed for those patient who were ambulatory. Cases identified with fundoscopic findings were evaluated by a digital fundus camera using fundus photographs in Ophthalmology department whenever necessary and possible.

III. RESULTS AND OBSERVATION

A total of 100 patients included in the study. The results were discussed in the tables. In table 1, 54% of patients normal fundus and 46% of patients showed positive fundus changes. In table 2, maximum no. showed in grade1(43.49%), followed by grade2 (39.13%), then lastly similar in both grade3 & grade4 (8.69%) in 46 patients of fundus changes. In table 3, 54% showed normal fundus and 46% showed positive fundus findings among which 37% showed arterial attenuation, 1% showed AV crossing, 3% hemorrhage, 1% exudate, 2% cases showed papilledema and lastly 1% of each showed macular edema and retinal detachment. There was no cases showing cortical blindness at the time presentation. In table 4, it is observed that 39.1% Primi showed retinopathy followed second (36.9%) and similar in both third & fourth gravida(8.6%) ,then multigravida (4.7%) and lastly in fifth (2.1%).

TABLE 1:RETINAL CHANGES IN PATIENTS OF HYPERTENSIVE RETINOPATHY

FUNDUS FINDINGS	NUMBER	PERCENTAGE
NORMAL	54	54
ABNORMAL	46	46
TOTAL	100	100.00

TABLE 2: RETINAL FINDINGS ACCORDING TO GRADING

GRADE OF FUNDUS CHANGES	NUMBER	PERCENTAGE
GRADE1(ARTERIOLAR SPASM)	20	43.49
GRADE2(DEFINITE FOCAL NARROWING AND ARTERIOVENOUS NIPPING)	18	39.13
GRADE3(ABOVE+HEMORRHAGE+EXUDATE)	4	8.69
GRADE4(PAPILLODEMA AND ABOVE)	4	8.69
TOTAL	46	100.00

TABLE 3:INDIVIDUAL RETINAL FINDINGS

FUNDUS FINDINGS	NUMBER	PERCENTAGE
NORMAL FUNDUS	54	54
ARTERIAL ATTENUATION	37	37



ARTERIOVENOUS CROSSING CHANGES	1	1
HEMORRHAGE	3	3
EXUDATE	1	1
PAPILLODEMA	2	2
RETINAL DETACHMENT	1	1
MACULAR EDEMA	1	1
CORTICAL BLINDNESS	0	0
TOTAL	100	100.00

TABLE 4: RETINAL FINDINGS IN RELATION TO GRAVIDA

GRAVIDA	NORMAL		ABNORMAL	
	NO	PERCENTAGE	NO	PERCENTAGE
PRIMI	26	48.1	18	39.1
SECOND	9	16.12	17	36.9
THIRD	4	7.4	4	8.6
FOURTH	7	13.63	4	8.6
FIFTH	3	5.5	1	2.1
ONWARDS	5	9.25	2	4.7
TOTAL	54	100.00	46	100.00

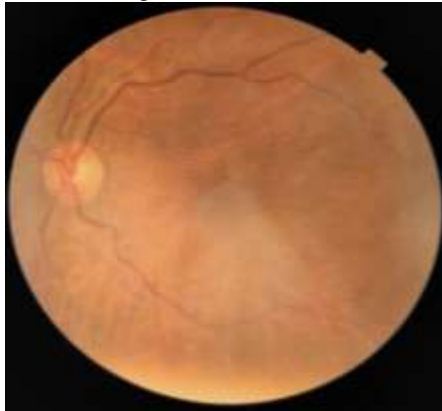
IV. DISCUSSION

In our study ,age plays an important role in the occurrence of the disease which This could be due to the fact that young patients are more prone to develop hypertension during pregnancy The retinal vascular changes correlate with the severity with systemic hypertension hence fundus examination may give a clue about severity of disease.In our study, in a total of 100 patients,54% showed normal fundus and 46% showed abnormal fundus at the time of presentation which is similar to previous studies (3,6,7).In the present study, maximum number of fundus changes seen in grade1 (43.49%), followed by grade2 (39.13%), then lastly similar in both grade3 & grade4 (8.69%) in 46 patients fundus changes. In our study, arterial attenuation was the most consistent finding and it transient and disappeared after control of blood pressure or after delivery. These findings is again similar to previous studies(6,7). In the present study, among 100 patients 54% showed normal fundus and 46% showed positive fundus findings among which 37% showed arterial attenuation, 1%

showed AV crossing, 3% hemorrhage, 1% exudate, 2% cases showed papilledema and lastly 1% of each showed macular edema and retinal detachment. There was no cases showing cortical blindness at the time presentation.In the study, it has been observed that arterial attenuation was the most common finding might be due to poor control blood pressure which may occur due to the spasm of retinal vessels. It has been observed all these findings disappeared following delivery and also after control blood pressure, can be co related to several other studies(7).It has also been reported that hypertensive retinopathy was more commonly seen in primigravida patients It has been also observed that higher the gravida ,prevalence of fundus findings become lesser in patients of pregnancy induced hypertension.(7).In our study, 39.1% Primi showed retinopathy followed second (36.9%) and similar in both third & fourth gravida(8.6%) ,then multigravida (4.7%) and lastly in fifth (2.1%).This could be due to more sensitive of retinal vessels to the raised blood pressure in case of patients with primigravida. So they more



prone to develop hypertensive retinopathy as compared to other gravida.



Grade1: hypertensive retinopathy



Grade2: hypertensive retinopathy



Grade3 hypertensive retinopathy: Exudate with arterial attenuation and hemorrhage



Grade4: hypertensive retinopathy: Papilledema with macular star.

V. CONCLUSION:

Ophthalmological examinations during hospital stay are important aid in the management of retinopathy in pregnancy induced hypertension. The development of hypertensive retinopathy is related to severity of hypertension associated with poor control of blood pressure.

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Conflict of interest : None

Ethical Policy and institutional review broad statement: Reviewed and approved by institutional ethics committee



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