STUDY OF CLINICAL PROFILE AND OCULAR CHANGES OF PATIENTS HAVING PREGNANCY INDUCED HYPERTENSION IN A TERTIARY CARE RURAL HOSPITAL

INTRODUCTION-

Pregnancy induced hypertension (PIH) is the hypertension that develops as a direct result of gravid state. According to National high blood pressure education program (NHBPEP-2000)[1] and American college of obstetricians and gynecologists (ACOG-2002),[2] PIH includes gestational hypertension, pre-eclampsia, and eclampsia. The most current definition of hypertension in pregnancy from the (ACOG) was published in 2013 with updates and recommendations made in 2019 and 2020. Most guidelines around the world are aligned in defining hypertension in pregnancy as BP ≥140/90 mm Hg. Pre-eclampsia is best described as multi-system disorder of unknown etiology characterized by development of hypertension to the extent of 140/90 mm of Hg or more with proteinuria after the 20th week of pregnancy in a previously normotensive and non-proteinuric patient. Pre-eclampsia is divided into two groups according to its severity as mild and severe. Blood pressure more than 160/110 mm of Hg and proteinuria more than 2 gm/24 hours or > + 2 are included in severe pre-eclampsia. If convulsions are associated with it, then it is termed as eclampsia.

Ocular involvement in PIH is common and the occurrence rate varies from 30-100% in different studies.[3] Undertreated eclampsia accounts for 75% of all maternal deaths[4,5] and causes irreversible blindness in 1-3% of affected patients.[6] PIH is a multi-system disease that can affect end organs such as kidneys, liver, eyes, hemopoietic system, and placenta. Retinal involvement is fairly common but not always investigated. It is a known fact that the eye is a unique structure, wherein blood vessels can be visualized directly and non-invasively through the technique of fundoscopy. Positive fundus changes in severe preeclampsia cannot be ignored as they can be indicator of impending eclampsia.[7] Therefore, it is very important that the attending physician seeks an ophthalmological examination in every case of PIH.

AIM- To study clinical profile and ocular changes of patients having Pregnancy Induced Hypertension and to find the anterior and posterior segment changes in patients of PIH.

MATERIALS AND METHODS- A hospital based, descriptive cross sectional study was conducted at tertiary care hospital from March 2023 to December 2023. Study was started after approval from the ethical committee and obtaining informed consent from the patients or relatives. A total of 150 patients with PIH were screened and evaluated. Evaluation was done on basis of detailed history and examination including bedside visual acuity, torch light examination and fundus examination. Demographic data and other significant findings were noted. Patients with PIH exhibiting ophthalmic symptoms or referred for fundoscopic evaluation were included in the study. Patients with history of pre-existing hypertension, convulsions and history of previous ocular surgery were excluded from the study.

RESULTS-

1. Table No. 1- Age wise distribution of PIH patients

AGE	NUMBER OF PATIENTS	OCULAR CHANGES PRESENT	OCULAR CHANGES ABSENT
18-22	51	13 (25.49%)	38 (74.51%)
23-27	49	13 (26.53%)	36 (73.47%)
28-32	33	15 (45.45%)	18 (54.55%)
33-37	11	3 (27.27%)	8 (72.73%)
38-42	6	1 (16.67%)	5 (83.33%)
TOTAL	**150**	**45**	**105**

In our study, the age group 28-32 years has the highest number of patients (45.45%) with ocular changes.

2. Table No. 2- Classification of PIH patients according to gravida score.

GRAVIDA SCORE	NUMBER OF PATIENTS	OCULAR CHANGES PRESENT	OCULAR CHANGES ABSENT
PRIMIGRAVIDA	78	23 (29.48%)	55 (70.52%)
MULTIGRAVIDA	72	22 (30.55%)	50 (69.45%)
TOTAL	**150**	**45**	**105**

In our study, the distribution of PIH patients with ocular changes was almost equivalent between primigravida (29.48%) and multigravida (30.55%).

3. Table No.3- Comparison of PIH patients with anterior and posterior segment changes.

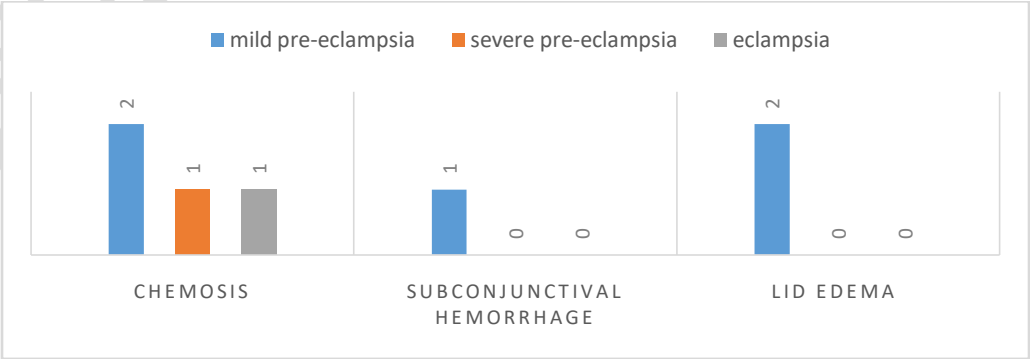
SEVERITY OF PIH	ANTERIOR SEGMENT CHANGES PRESENT	POSTERIOR SEGMENT CHANGES PRESENT
MILD PRE-ECLAMPSIA (N=123)	4 (3.25%)	34 (27.64%)
SEVERE PRE-ECLAMPSIA (N= 20)	1 (5%)	4 (20%)
ECLAMPSIA (N=7)	2 (28.57%)	7 (100%)
TOTAL (N=150)	7 (4.66%)	45 (30%)

Out of 150 patients, 82% were mild pre-eclampsia (123 patients), 13.33% were severe pre-eclampsia (20 patients) and 4.67% were eclampsia (7 patients).

Anterior segment changes were present in 4.06% patients of mild pre-eclampsia, 5% patients of severe pre-eclampsia and 42.85% patients of eclampsia. Posterior segment changes were present in 27.64% patients of mild pre-eclampsia, 20% patients of severe pre-eclampsia and 100% patients of eclampsia.

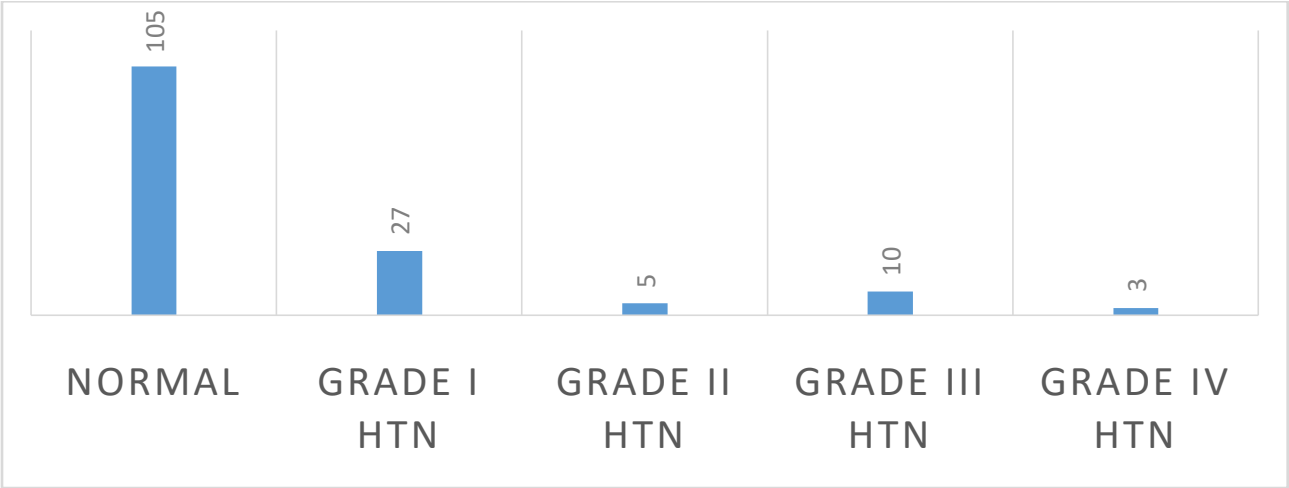
By applying Chi-square test, there is a significant association between ocular changes and severity of pre-eclampsia and eclampsia ($P < 0.05$).

4. Graph No.1- showing distribution of anterior segment changes in PIH patients.



In our study, a total of 4.66% patients had anterior segment findings like chemosis (3.33%), subconjunctival hemorrhage (0.66%) and lid edema (0.66%). Mild pre-eclampsia showed the highest number of anterior segment changes, with 2 patients of chemosis, 1 patient with subconjunctival hemorrhage and 2 patients with lid edema.

Graph No. 2- showing distribution of posterior segment changes in PIH patients.



In our study, 70% patients had normal fundus findings. Following the Keith-Wagener-Barker grading system, Grade I hypertensive retinopathy was observed in 18% (27 patients), Grade II in 3% (5 patients), Grade III in 7% (10 patients) and Grade IV in 2% (3 patients).

5. TABLE No. 4- comparison of different retinal signs on fundoscopy

	MILD PRE ECLAMPSIA (N= 123)	**SEVERE PRE ECLAMPSIA (N=20)**	**ECLAMPSIA (N= 7)**	**TOTAL (N=150)**
Arteriolar attenuation	30 (24.39%)	4 (20%)	7 (100%)	41 (27.33%)
AV nicking	3 (2.43%)	0	2 (28.57%)	5 (3.33%)
Cotton wool spots	4 (3.25%)	2 (10%)	2 (28.57%)	8 (5.33%)
Hard exudates	4 (3.25%)	3 (15%)	2 (28.57%)	9 (6.0%)

Hemorrhages	7 (5.69%)	3 (15%)	4 (57.14%)	14 (9.33%)
Papilloedema	3 (2.43%)	0	0	3 (2.0%)

Arteriolar attenuation was the most common retinal vascular findings seen in 41 (27.33%) patients.

DISCUSSION-

A Hospital based, descriptive cross sectional study was conducted at a tertiary care hospital. A total of 150 patients with PIH were screened and evaluated for a duration of 10 months. In the present study, maximum PIH patients with ocular changes were in the age group of 28-32 years. In our study, the distribution of PIH patients with ocular changes was almost equivalent between primigravida (29%) and multigravida (30%) which is consistent with the study of **Uma et al** [8] and **Bhandari et al** [9]. Young retinal arterioles are more sensitive to high blood pressure. The multigravida women are aware of complications of pregnancy, so they attend antenatal clinic regularly. Out of 150 patients, 82% were mild pre-eclampsia (123 patients), 13.33% were severe pre-eclampsia (20 patients) and 4.67% were eclampsia (7 patients). A total of 7 (4.66%) patients had anterior segment findings (3 eclampsia and 6 preeclampsia). This suggests that while these signs are possible, they may not be frequent, which is consistent with the findings from studies by **Bakhda** [3] and **Warad et al.** [4] 27.64% patients of mild pre-eclampsia, 20% patients of severe preeclampsia and 100% patients of eclampsia showed posterior segment changes. In our study, most patients (70%) had normal fundus findings. Arteriolar attenuation was seen in 41 patients (27.33%) and was the most commonly observed retinal sign. According to **Bhandari et al**[9], (44%) patients showed arteriolar attenuation as the most common finding that correlates with our study.

CONCLUSION-

150 patients of pre-eclampsia and eclampsia were studied in which 4.66% patients showed anterior segment changes and 30% showed posterior segment changes. This is slightly lower comparable with various studies. Decline in the percentage found in our study could be due to early and prompt obstetrical and medical management of PIH. Ocular examination reveals important objective information concerning the disorder. Presence of ocular changes is an indirect marker of severity of PIH and is of prognostic value.

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