

# Ocular Changes in Eclampsia Patients Among 100 Cases in Mymensingh Medical College Hospital, Bangladesh

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## Abstract

The present study was directed to demonstrate the changes in optic disc, vascular changes, edema in retina and identify any hemorrhage in eclampsia patient. It is a cross sectional study done in Department of obstetrics and Gynaecology, Mymensingh Medical College Hospital, Mymensingh from March 2008 to February 2009. During the study period 566 eclamptic patients were admitted in the Department of obstetrics and Gynaecology, Mymensingh Medical College Hospital, Mymensingh. From the eclamptic patient a total of 100 patients were selected as convenient for the study. A total of 100 normotensive and non diabetes patients matched by gestational duration were selected as convenient as the control group for comparison of ocular changes. Fundoscopic examination was done by ophthalmologist within 24 hours of admission of patient both in study group and control group. Visual acuity was also recorded before fundoscopic examination. For data collection a pre designed data collection sheet was used to record the information. In this study, 44% of the study patients had ocular involvement. Among them 54% patient developed visual disturbance, 17% had conjunctival oedema, 2% had subconjunctival haemorrhage, 42% had vascular changes, 16% had macular oedema, 2% developed retinal haemorrhage and 1 patient developed serous retinal detachment.

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**Key words:** *Eclampsia; ocular change.*

## Introduction

Eclampsia is a major case of obstetric emergency. The incidence varies widely from country to country and even between different zones of the same country. The estimated incidence of eclampsia in USA is 5 - 7 cases per 10,000 deliveries<sup>1</sup>. Although the incidence has been reduced to 0.2 - 0.5% of all deliveries in developed countries<sup>2</sup>, but the incidence of eclampsia in developing countries varies widely ranging from 1 case per 100 pregnancies to 1 case per 1700 pregnancies<sup>3</sup>. The incidence of eclampsia in Bangladesh is still very high, about 7.9% of total deliveries<sup>4</sup>. It is a multisystem disorder because the vascular changes occur in all organs and cerebral vasospasm leading to ischaemia and researchers believe that oedema seems to play a key role in pathogenesis of convulsion in eclampsia<sup>5</sup>. Eclamptic seizures classically occur in the second half of pregnancy and up to 9 days after delivery but may occur as late as 6 weeks post-partum<sup>6</sup>.

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Wide ranges of ocular involvement resulting from pre-eclampsia and eclampsia has been reported in 30 - 100% of patients, which include retinal arteriolar spasm, optic neuropathy, cortical blindness and serous retinal detachment. Most common abnormality seen in the visual system is spasm and narrowing of retinal vassals reported in 70% of cases of pre-eclampsia. Other changes including retinal haemorrhage, papillaedema, cotton wool spots and arteriosclerosis can also be observed<sup>7</sup>.

Temporary blindness associated with eclampsia has been reported as originating from diffuse generalized spasm of retinal arterioles, thrombosis of the central artery, papillophlebitis, cerebral spasm and oedema<sup>8</sup>. Perhaps one of the best known although rare causes of loss of vision associated with pre-eclampsia and eclampsia is serous retinal detachment. It can occur as a complication of pre-eclampsia at antepartum or postpartum period even in the presence of only mild hypertension and in absence of significant retinal vascular abnormalities. However it is usually present in patients with severe pre-eclampsia or eclampsia<sup>7</sup>. The present study has been undertaken to determine the changes in optic disc, vascular changes, edema in retina and identify any hemorrhage in eclampsia patient.

## Methods

This is a cross sectional study done in department of obstetrics and Gynaecology, Mymensingh Medical College Hospital, Mymensingh from March 2008 to February 2009, where there is a separate eclampsia unit with some improved facilities and a good number of doctors and nurses have been working round the clock. Since the aim of the study was to evaluate the ocular changes in eclampsia patient for early management and reduction of maternal morbidity, therefore from the eclamptic patients a total of 100 patients were selected for the convenience of the study. A total of 100 normotensive and non diabetics' patients matched by gestational duration were also selected as the control group for comparison of ocular changes.

During the study period following patients were excluded from this study:

1. Eclampsia patients with previous ocular disease
2. Eclampsia patients with Diabetes Mellitus

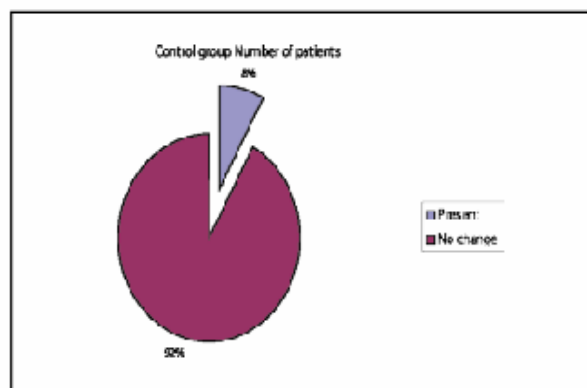
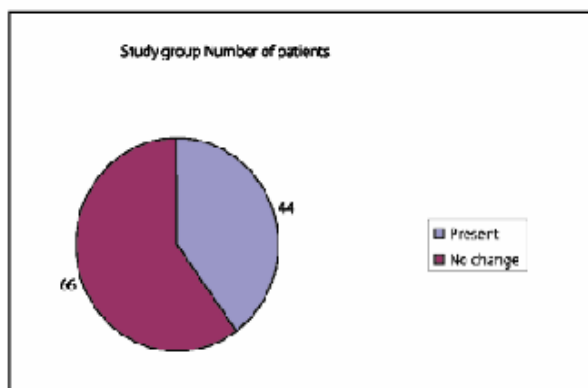
Fundoscopy examination was done by ophthalmologist within 24 hours of admission of patients both in study group and control group. Visual acuity was also recorded before fundoscopic examination. Follow up fundoscopy was done after 7 days of 1st fundoscopy for those patients having abnormalities during 1st fundoscopy. Other ocular changes were also identified and documented. For data collection a pre-designed data collection sheet was used to record the informations. Collected data were compiled with the help of a personal computer and appropriate statistical analysis was carried out.

## Results:

There were 566 eclamptic patients during study period. From these eclamptic patients a total 100 patients were selected. The mean age of the patient was 21.82 (table 1). It is evidenced that 66% of patients under study had no antenatal booking whereas 34% patients had irregular antenatal checkup (table 1). Our study recorded that 48% of our study patients were with intrapartum eclampsia and 38% patients had systolic blood pressure >160mm of Hg and 36% patients had diastolic blood pressure >100 mm of Hg (table1). Figure 1 represents that the incidences of ocular involvement among the eclampsia patients were 44% and incidence among control group was 8% during the study period.

**Table 1**  
Distribution of patients by age and nature of onset

Patients distribution by age		Nature of onset of characteristics in patients with eclampsia expressed in numbers and %		
Age in years	Gestational Age in years	ANC Regular: 00 (0%)	Antipartum: 28 (28%)	Severity of diseases
Mean 21.82	Mean 36.20	Irregular: 34 (34%)	Post- partum: 24 (24%)	<u>Systolic BP:</u> >160 in : in 38 (38%) patients 140 - 160 in : in 41 (41%) patients <140 in : in 22 (22%) patients
SD 5.171457	SD 3.17830	Neither: 66 (66%)	Intrapartum: 48 (48%)	<u>Diastolic BP</u> >110 : in 36 (36%) patients 91 - 110 : in 48 (48%) patients <90 : in 6 (6%) patients



*Figure 1: incidence of ocular involvement*

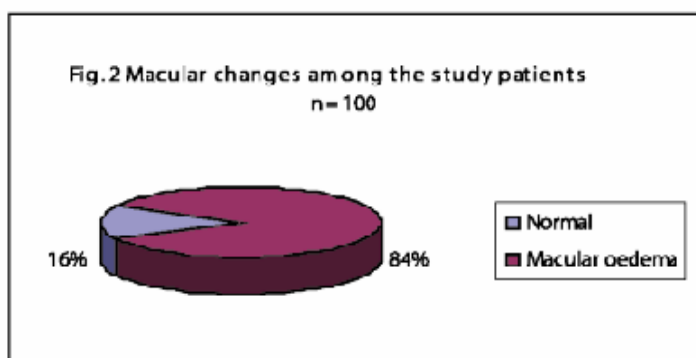
In 54% patients visual acuity was between 6/9 - 6/18 and 22% had normal visual acuity. For 24 patients it was not recorded due to lack of full orientation. In 7% of study patients development of conjunctival oedema was noticed and in 2% subconjunctival hemorrhage developed. Table 2 demonstrates that 5% of study patients had increased cup disc ratio, 01% patient had disc swelling and 01% patient had obliterated disc margin. The study further evidenced that in 42% of study patient vascular changes were found to have developed. Among them 26% had vascular

narrowing, 6% had vascular spasm, 3% had vascular tortuosity and 7% had both vascular narrowing and spasm. There was development of splinter hemorrhage in 2% of study patients, 4% had soft exudates and 1 patient developed serous retinal detachment. (Table 2). Figure 2 shows that 16% of patients developed macular edema.

Table 2

Numbers and % of patients exhibiting different characteristics to visual acuity test and fundoscopy.

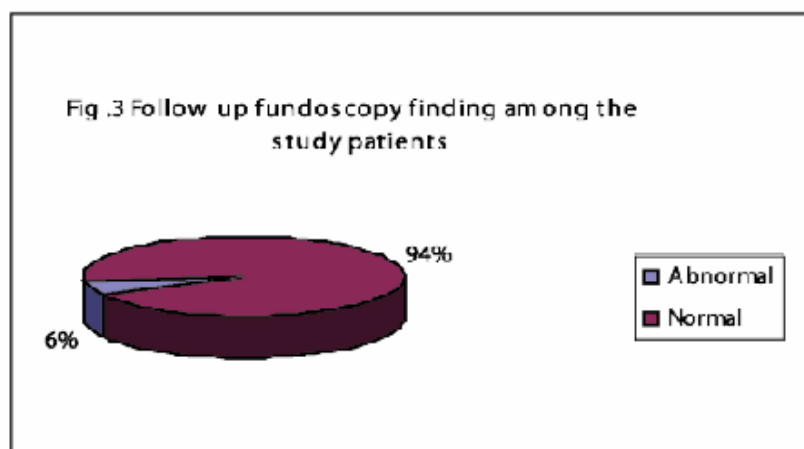
Parameters of examinations	Numbers and % of patients exhibiting different characteristics to visual acuity test and fundoscopy.		
Visual acuity	Normal	22	22%
	Abnormal	54	54%
	Not recorded	24	24%
Conjunctival changes	Normal	91	91%
	Conjunctival edema	07	07%
	Sub-conjunctival hemorrhage	02	02%
Disc changes	Normal	93	93%
	Increased cup-disc ratio	05	05%
	Disc swelling	01	01%
	Margin obliterate	01	01%
Vascular changes	Normal	58	58%
	Vascular swelling	26	26%
	Vascular spasm	06	06%
	Vascular tortuosity	03	03%
	Vascular narrowing & spasm	07	07%
Retinal changes	Normal	03	03%
	Splinter hemorrhage	02	02%
	Soft exudates	04	04%
	Serous retinal detachment	01	01%



Only 8 patient of control group had vascular changes like vascular narrowing and vascular tortuosity, whereas 42% of study patient developed different vascular changes (table3). It is remarkable from the fig. 3 that 94% of study patients had normal fundoscopy findings after 7 days, only 6% showed abnormal fundoscopy

**Table 3**  
**Comparison of fundoscopic changes in two groups**

Parameters of examinations	Numbers and % of patients exhibiting different characteristics to visual acuity test and fundoscopy.		
Visual acuity	Normal	22	22%
	Abnormal	54	54%
	Not recorded	24	24%
Conjunctival changes	Normal	91	91%
	Conjunctival edema	07	07%
	Sub-conjunctival hemorrhage	02	02%
Disc changes	Normal	93	93%
	Increased cup-disc ratio	05	05%
	Disc swelling	01	01%
	Margin obliterate	01	01%
Vascular changes	Normal	58	58%
	Vascular swelling	26	26%
	Vascular spasm	06	06%
	Vascular tortuosity	03	03%
	Vascular narrowing & spasm	07	07%
Retinal changes	Normal	03	03%
	Splinter hemorrhage	02	02%
	Soft exudates	04	04%
	Serous retinal detachment	01	01%



## Discussion

In this study the incidence, age, status of antenatal care, type of eclampsia, blood pressure of eclampsia to see the severity of disease and analysis of ocular involvement with the help of ophthalmologist were analyzed. From the different literatures review it is found that ocular changes from retinal hemorrhage to temporary blindness may occur in eclampsia and pre-eclampsia. In Bangladesh still now no study was done on ocular changes in eclampsia and preeclampsia. For this, the study was undertaken to see the ocular status of our women of eclampsia and pre-eclampsia in Bangladesh.

During this study period (from March 2008 to February 2009) total number of obstetric patients admitted was 13970 and total numbers of deliveries were 7542. Total number of patients admitted with eclampsia was 566. So, the incidence of eclampsia was found to be 7.5% in this study. The incidence of eclampsia has been reported to be 7.9% of total deliveries in Bangladesh<sup>4</sup>. In our neighboring countries, India and Nepal the incidence is 1.4% and 1.3% respectively<sup>9</sup>. These observations show that the incidence of eclampsia is still very high in this subcontinent especially in Bangladesh. Most of the patients in this study group (54%) belonged to the age group  $\leq 20$  years. Mean age of the patients in this study group was 21.6 and it corresponds to the findings of the study Khanl<sup>10</sup>, where the mean maternal age determined was  $23 \pm 8$  years. The incidence of eclampsia has been found to be higher in the young women who are less than 25 years of age found in studies carried out in Bangladesh and other countries<sup>10, 11, 12</sup>. In the present study ocular involvement was recorded in 44% of the patients, Obes<sup>13</sup> and Valluris<sup>14</sup> found ocular involvement in 30 - 100% patients of pre-eclampsia and eclampsia. Indin et al, reported ocular involvement in 45% patients of pre-eclampsia and eclampsia<sup>8</sup>.

Analysis of visual acuity shows that 54% of the study patients had visual disturbance. Researchers claimed visual disturbance in

- 25% patients with severe pre-eclampsia and eclampsia. Analysis of vascular changes showed that 42% of the study patient developed vascular changes. Among them 26% developed vascular narrowing, 6% had vascular spasm and 3% had vascular tortuosity and 7% had both vascular narrowing and spasms. Among the control group 5% patient had mild vascular narrowing and 3 patients had vascular tortuosity. Sathish and Arnold, reported vascular narrowing and spasm in 70% cases of pre-eclampsia and eclampsia<sup>15</sup>. About the retinal changes, among the study patients 2 patients developed splinter haemorrhage, 4 patients developed soft exudates and 1 patient developed serous retinal detachment, Hasan Kafali reported serous retinal detachment in 10% of eclampsia patients<sup>7</sup>.

## Conclusion

Eclampsia is a multi system disorder. Many patients come to our hospital at the terminal stages with many secondary complications. Ocular involvement is one among the eclampsia patients. So special attention should be paid to the assessment of ocular change in this patients and a last minute best management effort should be given. Team work approaches between obstetricians, physicians, ophthalmologists are indispensable. A vigilant eye must be kept during management of these patients to improve the maternal outcome.

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