

Evaluation of Ocular Changes in Hypertensive Disorders of Pregnancy

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Abstract : Introduction: Pre-eclampsia and eclampsia are hypertensive disorders of pregnancy with multisystem involvement and are common causes of morbidity and mortality in obstetrics. It is believed that changes in retinal arterioles may indicate similar changes in the placenta. Therefore, this study was undertaken to evaluate the ocular manifestations in cases of pre-eclampsia and eclampsia and to deduce any association between the retinal changes and blood pressure, the severity of disease, gravidity, proteinuria, and other lab parameters so that a better approach could be devised to ensure maternal and fetal well-being. Materials and Methods: This was a hospital-based cross-sectional study conducted over a period of one year, from April 2021 to May 2022. 350 admitted patients with diagnosed pre-eclampsia, eclampsia, and pre-eclampsia superimposed on chronic hypertension were included in the study. A pre-structured proforma was used. After taking consent and ocular history, a bedside examination to record visual acuity, pupillary size, corneal curvature, field of vision, and intraocular pressure was done. Dilated fundus examination was done with a direct and indirect ophthalmoscope. Age, parity, BP, proteinuria, platelet count, liver and kidney function tests were noted down. The patients with positive findings only were followed up after 72 hours and 6 weeks of termination of pregnancy. Results: The mean age of patients was 26.18 ± 4.33 years (range 18-39 years). 157 (44.9%) were primigravida while 193(55.1%) were multigravida. 53 (15.1%) patients had eclampsia, 128(36.5%) had mild pre-eclampsia, 128(36.5%) had severe pre-eclampsia and 41(11.7%) had chronic hypertension with superimposed pre-eclampsia. Retinal changes were found in 208 patients (59.42%), and grade I changes were the most common. 82(23.14%) patients had grade I changes, 75 (21.4%) had grade II changes, 41(11.71%) had grade III changes, and 11(3.14%) had serous retinal detachment/grade IV changes. 36 patients had unaided visual acuity $<6/9$, of these 17 had refractive error and 19(5.4%) had varying degrees of retinal changes. 3(0.85%) out of 350 patients had an abnormal field of vision in both eyes. All 3 of them had eclampsia and bilateral exudative retinal detachment. At day 4, retinopathy in 10 patients resolved, and 3 patients had improvement in visual acuity. At 6 weeks, retinopathy in all the patients resolved spontaneously except persistence of grade II changes in 23 patients with chronic hypertension with superimposed pre-eclampsia, while visual acuity and field of vision returned to normal in all patients. Pupillary size, intraocular pressure, and corneal curvature were found to be within normal limits at all times of examination. There was a statistically significant positive association between retinal changes and mean arterial pressure. The study showed a positive correlation between fundus findings and severity of disease (p value <0.05) and mean arterial pressure (p value <0.005). Primigravida had more retinal changes than multigravida patients. A significant association was found between fundus changes and thrombocytopenia and deranged liver and kidney function tests (p value <0.005). Conclusion: As the severity of pre-eclampsia and eclampsia increases, the incidence of retinopathy also increases, and it affects visual acuity and visual fields of the patients. Thus, timely ocular examination should be done in all such cases to prevent complications.

Keywords : eclampsia, hypertensive, ocular, pre-eclampsia

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