

Retinal Findings in Cases of Preeclampsia

Zehra Kurdoğlu¹, Mertihan Kurdoğlu¹, E. Gülçin Ay¹, Tekin Yaşar²

¹Yüzüncü Yıl Üniversitesi Tıp Fakültesi, Kadın Hastalıkları ve Doğum Anabilim Dalı, Van, Türkiye

²Yüzüncü Yıl Üniversitesi Tıp Fakültesi, Göz Hastalıkları Anabilim Dalı, Van, Türkiye

Abstract

Objective: In this study, we aimed to investigate the ophthalmological findings in the patients hospitalized and treated for a diagnosis of preeclampsia during last 5 years in Department of Obstetrics and Gynecology, Faculty of Medicine, Yuzuncu Yil University.

Methods: Records of 193 patients hospitalized due to preeclampsia and consulted Ophthalmology Department between September 2005 and 2010 were searched retrospectively. We could find 148 of those.

Results: The most common complaints were headache, epigastric pain, blurred vision. The ophthalmological findings of 98 patients were assessed as normal while 50 of those were pathologic. Hypertensive retinopathy, bilateral, right and left retinal detachment were detected in 24, 4, 3, 1 of 50 patients who had pathological ophtalmologic findings, respectively.

Conclusion: Findings of retinal detachment, hypertensive retinopathy and hemorrhage may be detected in patients independent of severity of preeclampsia while maculopathy and macular edema might be found more often in the patients with severe preeclampsia.

Keywords: Preeclampsia, ophtalmological findings, retinal detachment.

Kliniğimizdeki preeklampsi olgularına ait göz dibi bulgularının araştırılması

Amaç: Bu çalışmada, Yüzüncü Yıl Üniversitesi Tıp Fakültesi Kadın Hastalıkları ve Doğum Kliniği'nde son 5 yılda preeklampsi tanısıyla takip ve tedavileri yapılmış hastaların göz dibi bulgularının incelenmesi amaçlanmıştır.

Yöntem: Eylül 2005 ile Eylül 2010 tarihleri arasında, Yüzüncü Yıl Üniversitesi Tıp Fakültesi Hastanesi Kadın Hastalıkları ve Doğum Kliniği'nde preeklampsi tanısıyla hospitalize olan ve göz konsültasyonu istenen 193 hastanın kayıtları retrospektif olarak incelenmiş ve 148' inin göz dibi muayene bulgularına ulaşılabilmektedir.

Bulgular: Göz dibi muayenesi yapılan hastalarda en sık baş ağrısı, epigastrik ağrı, bulanık görme ve gözlerde sinek uçuşması şikayetlerine rastlanılmıştır. Doksan sekiz hastanın göz dibi muayenesi normal olarak değerlendirilirken 50 hastaninkinde patolojik bulgular saptanmıştır. Patolojik göz dibi muayenesi olan 50 hastanın 24'ünde hipertansif retinopati, 4'ünde bilateral retina dekolmanı, 3'ünde sağ retina dekolmanı ve 1'inde sol retina dekolmanı görülmüştür.

Sonuç: Retina dekolmanı, hipertansif retinopati ve hemoraji bulguları preeklampsi şiddetinden bağımsız olarak hastalarda tespit edilebilmekle birlikte makülopati ve maküлада ödeme, şiddetli preeklampşik hastalarda daha fazla rastlanılabilir.

Anahtar Sözcükler: Preeklampsi, göz dibi bulguları, retina dekolmanı.

Introduction

Preeclampsia is characterized by hypertension (140/90 mmHg and above) and proteinuria (300 mg/day) which appear after 20th gestational week. It can be seen about 5-10% of all pregnancies, especially frequent in primipare.^[1,2]

Preeclampsia affects all organs and systems including eyes.^[3] Visual symptoms are photopsia, hemianopsia, unexpected focusing deficiency, blurred vision, decrease in vision, and complete blindness in severe cases.^[4,5] Although visual defects develop in 25% of severe preeclamptic

women, complete blindness is rare in these patients and the incidence is between 1% and 3%^[4,5,6] However, Cunningham et al. reported that blindness is more prevalent and the incidence is about 15%^[5,7,8] This blindness may be caused by occipital cortex or retina involvement.^[9] There are retinal vascular changes in 30-100% of preeclampsia cases. The most frequent ocular change is the vasoconstriction of retinal arterioles. Exudative retinal detachment caused by the involvement of choroidal vascularization is a rare reason for vision loss in preeclampsia syndrome^[3]. It affects 1-2% of patients with preeclampsia and it is frequently bilateral and serous. Full recovery after delivery by clinical management is observed within a few weeks in patients who have serous detachment during pregnancy, and any surgical intervention is not required.^[10]

In this study, we aimed to investigate the ophthalmological findings in the patients hospitalized and treated for a diagnosis of preeclampsia during last 5 years in Department of Obstetrics and Gynecology, Faculty of Medicine, Yüzüncü Yıl University.

Methods

Records of 193 patients hospitalized in Department of Obstetrics and Gynecology, Faculty of Medicine, Yüzüncü Yıl University due to preeclampsia and asked eye consultation between September 2005 and 2010 were reviewed retrospectively and retinal findings of 148 patients could be reached. Statistical evaluation was performed by Fisher's exact test and p value lower than 0.05 was statistically accepted as significant.

Results

The youngest patient was 18 years old while the oldest one was 47 years old. Mean age was 30 and mean gestational week was 32. Average systolic and diastolic blood pressures of patients were measured as 174/107 mmHg. Proteinuria amount in 24 hours of urine was found as 3,809.14 mg/l/day. While 111 patients were delivered by cesarean and 62 patients were delivered by normal spontaneous vaginal method, 20 patients were dispatched or taken to another center during follow-up.

The most common complaints of patients were headache, epigastric pain, and blurred vision and floating specks in vision. Retinal findings of only 148 of 193 patients could be reached. While retinal examinations of 98 patients were evaluated as normal, pathological findings were detected in 50 patients. The most pathological retinal finding was found as hypertensive retinopathy and the relation between pathological retinal finding and preeclampsia severity was summarized in Table 1. Establishing retinal detachment, hypertensive retinopathy and hemorrhage as retinal finding was found as independent from preeclampsia severity ($p>0.05$). Edema and maculopathy in macula or papilla was found more in patients diagnosed severe preeclampsia than those with mild preeclampsia ($p=0.01$).

Discussion

Vision system of 30-100% of preeclamptic patients may be affected.^[10] Symptoms related with vision in preeclampsia include decrease in vision, photophobia and hemianopsia. The most prevalent 3 vision complications seen in preeclampsia

Table 1. The distribution of preeclamptic patients diagnosed pathological retinal finding.

Retinal finding	Severe preeclampsia (n)	Mild preeclampsia (n)	Total (n)	p
Hypertensive retinopathy	13	11	24	0.56
Edema in macula or papilla	5	0	5	0.01*
Hypertensive hemorrhage	4	1	5	0.21
Retinal detachment	5	3	8	0.62
Pigment epithelium detachment	1	0	1	-
Maculopathy	5	0	5	0.01
Degenerative fundus + myopic crescent	0	1	1	-
Left abducent paralysis	1	0	1	-
Nulliparity	46.8%	29.3%	0.0019	

are hypertensive retinopathy, exudative retinal detachment and cortical blindness. Possible reasons of these complications are coexisting or existing systemic vascular disease, hormonal changes, endothelium damage, abnormal autoregulation, hypoperfusion ischemia and hypoperfusion edema.^[5]

In our study, it was found that visual systems of 33.7% of preeclamptic patients were affected. While the most frequent complaint in these patients are floating specks in vision, blurred vision and decrease in vision, the most frequent complications are hypertensive retinopathy and retinal detachment.

Hypertensive retinopathy is seen in 60% of patients and it is the most frequent ocular complication of preeclampsia and eclampsia.^[11] It may be related with secondary changes such as focal arteriolar spasm and diffuse retinal edema, hemorrhage, exudate and infarcts in nerve fiber.^[12] Arteriolar constriction is reversible in most of the patients.^[13] In our study, hypertensive retinopathy was detected in 48% of patients with pathological retinal finding.

Another complication seen in preeclamptic patients is retinal detachment and its incidence is 1-2%. It was observed that 10% of patients with retinal detachment were eclamptic. It may occur before or after delivery and it is frequently bilateral, bullous, and serous and generally vascular changes of preeclampsia are not observed. Intensive arteriolar vasospasm secondary choroidal ischemia is held responsible for the development of retinal detachment. Choroidal vascular failure may cause lesions in retinal pigment epithelium, fluid transudation, and crescendo focal retinal detachment. Full recovery after delivery by clinical management is observed within a few weeks in patients who have serous retinal detachment during pregnancy, and any surgical intervention is not required. However, some macular sequelae in pigment epithelium may persist.^[10]

In our study, we detected retinal detachment in 16% of patients together with hypertensive retinopathy, edema and hemorrhage. The most frequent complaint in these patients was vision loss and 5 of them were diagnosed as preeclamptic. Mean blood pressure value of severe preeclamptic patients was 174/110 mmHg and

mean proteinuria amount in 24 hours of urine was 5.5 g/day. It was seen that all patients detected as having retinal detachment did not have antenatal follow-up and they applied to the hospital with a severe clinical situation. As a result of eye examination, bilateral retinal detachment was found in 4 patients, right retinal detachment was found in 3 patients, and left retinal detachment was found in one patient. In the fundus examinations of these patients, severe hypertensive retinopathy diagnoses were not observed in retinal arterial structures and generally all of them were told that their tensions should be taken under control. Systemic steroid treatment in 1 mg/kg dose was initiated only in one case. It was seen in these patients that retinal detachment underwent resolution by the recovery of preeclampsia after delivery. All of the patients were dispatched by reducing their visual problems and no surgical intervention was needed for averagely 6 months of follow-up period in the Eye Polyclinic.

Visual loss caused by cortex part of optic tracts may rarely appear in preeclampsia cases. Therefore, fundus examination and pupil reflex seem normal in these patients. The reasons of cortical visual loss are petechial bleeding, ischemia or focal edema and they are generally irreversible. It regresses by anti-hypertensive and anti-edema treatments in most of the patients. In this study, we did not observe any acute cortical blindness in our cases.^[14]

Conclusion

In the case of visual complaints in preeclamptic patients, other retinal findings may also be observed other than hypertensive retinopathy. Retinal detachment, hypertensive retinopathy and hemorrhage findings can be observed in patients independent of preeclampsia severity, but maculopathy and edema in macula can be seen in severe preeclamptic patients more frequently. More study series reviewing preeclampsia severity and pathological retinal findings are required.

References

1. Fodor A, Gyorffy A, Orosz L, Major T. Hemorheological changes and their clinical relevance in preeclampsia. *Orv Hetil* 2011;152:205-11.

2. Yılmaz A, Pata Ö, Öz Ö, Yıldırım Ö, Dilek S. Preeklampside iki taraflı seröz retina dekolmanı. *Retina-Vitreus* 2005;13:307-10.
3. Mihi D, Mihi CM, Talu S, Costin N, Ciuchina S, Malutan A. Ocular changes in preeclampsia. *Ophthalmologia* 2008;52:16-22.
4. Jyotsana, Sharma AK, Bhatt S. Reversible blindness in severe preeclampsia and eclampsia. *JK Science* 2004;6:43-5.
5. Bona M, Wong A. The eyes in pregnancy. *Ophthalmology Rounds* 2007;5(3). <http://www.ophthalmologyrounds.ca> (baskıda).
6. Swende TZ, Abwa T. Reversible blindness in fulminating preeclampsia. *Annals of African Medicine* 2009;8:189-91.
7. Tung CF, Peng YC, Chen GH, Chow WK, Yang DY, Hu WH. Hemolysis, elevated liver enzymes and low platelet count (HELLP) syndrome with acute cortical blindness. *Chin Med J (Taipei)* 2001;64:482-5.
8. Cunningham FG, Fernandez CO, Hernandez C. Blindness associated with preeclampsia and eclampsia. *Am J Obstet Gynecol* 1995;172:1291-8.
9. Llovera I, Roit Z, Johnson A, Sherman L. Cortical blindness, a rare complication of pre-eclampsia. *J Emerg Med* 2005;29:295-7.
10. Prado RS, Figueiredo EL, Magalhaes TV. Retinal detachment in preeclampsia. *Arq Bras Cardiol* 2002;79:183-6.
11. Schultz K, Birnbaum A, Goldstein D. Ocular disease in pregnancy. *Curr Opin Ophthalmol* 2006;16:308-14.
12. Tadin I, Bojic L, Mimca M, Karelovic D, Dogas Z. Hypertensive retinopathy and pre-eclampsia. *Coll Antropol* 2001;25:77-81.
13. Sunness J. The pregnant woman's eye. *Surv Ophthalmol* 1988;32:219-38.
14. Köken G, Yaman M, Yilmazer M, Oruç S. Ağır preeklampside akut görme kaybı. *Tıp Araştırmaları Dergisi* 2007;5:36-8.