

Eclampsia with neurological complications: a five-year experience of a tertiary centre

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Summary

Purpose: The neurological signs and symptoms in 107 pregnant women with eclampsia in the last five years at the Department of Obstetrics and Gynecology at the Yuzuncu Yil University School of Medicine are presented. **Materials and Methods:** The medical records of 107 pregnant women with eclampsia in the Clinic of Obstetrics and Gynecology at the Yuzuncu Yil University consulted with neurology clinic from September 2005 to December 2010, were evaluated. **Results:** The most common symptoms of the patients were seizure, headache, and seeing spots of light. Although neurologic examination was normal in 81 patients, 26 had pathological signs. The most common neurologic pathologic signs determined were alterations in consciousness. **Conclusion:** In eclamptic patients, brain scanning might reveal pathological results in spite of normal neurological examination. With neurological examination and brain scanning, it may be possible to diagnose and treat severe complications that may otherwise result in maternal mortality.

Key words: Eclampsia; Pregnancy; Neurologic signs; Brain imaging.

Introduction

Preeclampsia is a disease that may occur in the period from 20th week of pregnancy until the 6th week in the postpartum period; it is characterized by proteinuria (300 mg/24 h and over), and hypertension (140/90 mmHg and over). If this scenario is complicated with seizure, then it is called eclampsia [1]. Eclampsia is a relatively common complication of pregnancy, which leads to significant maternal and fetal morbidity and mortality [2]. Common neurologic symptoms are headache, visual disturbances, hyperreflexia; in eclampsia, convulsions and sometimes coma are accompanying neurologic symptoms. Rarely, transient blindness may occur in preeclampsia-eclampsia cases [3].

In the present study, we studied the neurologic signs and cranial scanning results of pregnant women who were managed and monitored with the diagnosis of eclampsia in the last five years in the Department of Obstetrics and Gynecology at Yuzuncu Yil University, School of Medicine.

Materials and Methods

The medical records of 107 pregnant women who were hospitalized with the diagnosis of eclampsia in the Department of Obstetrics and Gynecology at Yuzuncu Yil University School of Medicine and consulted with the Neurology Department in the period from September 2005 to December 2010, were evaluated retrospectively. Socio-demographic characteristics, neurologic examination findings, and brain imaging results were obtained from the medical charts.

Results

In this study, the medical records of 107 pregnant women with eclampsia were evaluated. The age of the patients ranged from 18 to 47 years with a mean of 27.4 years. The average gestational age was 33 weeks. The average blood pressure was 170/98 mmHg; 24-h proteinuria level was calculated as 2163.2 mg/l/day. Cesarean delivery was performed in 81 patients, whereas 26 patients had a normal spontaneous vaginal delivery.

The most common symptoms of the patients were seizure, headache, seeing spots of light, swelling in the body, epigastric pain, and visual disturbances. Fifty-two patients (48.5%) had the complaint of headache prior to seizure; 12 patients (11.2%) had seizures in the postpartum period. Neurologic examination was evaluated as normal in 81 patients (~76%); while neurologic examination revealed pathologic signs in 26 patients (~24%). The most common signs determined on neurologic examination were alterations in consciousness, e.g. confusion, not responding to a painful stimulus, and status of coma (Table 1).

Cranial scanning was performed on patients who had abnormal neurologic signs and severe complaints such as persistent headache, nausea and vomiting without any pathologic signs. Magnetic resonance imaging (MRI) was used to scan the cranium. We found pathologic signs in 14 (~53.8%) of those patients, who had pathologic signs in neurologic examination. Thirty-two patients (39.5%) had pathologic signs on cranial scanning despite a normal neurologic examination. In this study, for cranial scanning, MRI was performed in a total of 85 patients. In 46 patients (54.1%), pathologic signs were recognized on cranial scanning (Table 2).

All patients, who were consulted at the Department of Neurology were recommended to undergo blood pressure regulation and monitoring of consciousness. All eclamptic patients were given anti-convulsive treatment with 2

Table 1. — Neurological examination signs.

Signs	n	%
Altered consciousness (confusion-coma)	21	20
Loss of vision	3	3
Bilateral restriction of lateral eye movement	1	0.5
Loss of strength	1	0.5
Normal	81	76
Total number of patients	107	100

Table 2. — Distribution of findings of brain MRI.

Signs	n	%
PRES	24	28.2
Edema	16	18.8
Hematoma	4	4.7
Infarct	4	4.7
Hypertensive encephalopathy	2	2.3
Subarachnoid hemorrhage	2	2.3
Sinus vein thrombosis	1	1.2
Bifrontal glial mass	1	1.2
Hypoxic encephalopathy	1	1.2
Normal	30	35.4
Total	85	100

PRES: posterior reversible encephalopathy syndrome.

g/h of magnesium sulfate, and 6 mg/d of diazepam in that order. In addition to anti-convulsive treatment, anti-edema treatment was done with 0.5-1.5 g/kg/d of mannitol in 31 patients who were unconscious and with 4 x 4-8 mg/d of dexamethasone in two patients. One patient was given 2 x 0.6 cc of low molecular weight heparin treatment because of subacute infarct; one patient was transferred to the Department of Neurosurgery due to the finding of a frontal mass. Three patients were monitored in the intensive care unit after intubation since they developed respiratory failure.

Discussion

Eclampsia is a severe complication of pregnancy, which may affect various organs and systems. Scanning techniques may help in disclosing the pathogenesis of this complication and are able to identify other brain lesions, as well. Among scanning methods, brain MRI is the most commonly used technique [4].

In eclamptic patients, early diagnosis before the development of neurologic complications is essential. During monitoring of preeclamptic and eclamptic pregnant women, visual disturbances, altered mental status or seizures should alert the physician for brain lesions. Therefore, these patients should have cranial scanning performed [5, 6]. In this study, cranial scanning was done in 85 patients.

In eclamptic patients, changes consistent with cytotoxic edema may be seen, especially in posterior parts of cerebral hemispheres, but less frequently in the brain stem, cerebellum, and basal ganglia on brain imaging studies. If it is not treated, vasogenic edema and irreversible brain damage may develop [6]. In our study, in accordance with the literature data, pathologic changes

were located in the cerebral hemispheres in 43 patients, in the brain stem in one patient, in the cerebellum in one patient, and in the basal ganglia in one patient.

Digre *et al.* determined pathologic signs on scanning images in 50% of 16 severe preeclamptic patients [7]. In another study, this rate was reported to be 75% [8]. Topuz *et al.* found the rate to be 47% among patients with severe eclampsia, eclampsia, and HELLP syndrome [9]. In another study, no pathologic scanning sign was determined in patients with atypical eclampsia [10]. In our study, 46 patients (54.1%) had pathologic findings.

Tamam *et al.* [5] identified pathologic scanning signs in 79.3% of patients with pathologic findings on neurologic examination, while the authors found pathologic scanning signs in 14% of the patients who had a normal neurologic examination. In our study, the results of brain scanning studies were pathologic in 14 patients (53.8%) with pathologic neurologic examination while, 32 patients (39.5%) with normal neurologic examinations had pathologies on brain scanning images.

In eclamptic patients, with appropriate treatment of hypertension, the lesions and clinical symptoms are expected to regress [3]. In our study, 94 patients, who were able to regulate their blood pressure, were discharged. Two patients died because of intracranial bleeding and one patient died because of cerebral edema and respiratory failure. Nineteen patients were managed by the Department of Neurology because of posterior reversible encephalopathy syndrome; they were discharged after regression of clinical symptoms.

Conclusion

In conclusion, eclampsia is a severe complication of pregnancy which may or may not cause severe abnormal neurological signs. In eclamptic patients, brain scanning might reveal pathological results in spite of a normal neurological examination. With neurological examination and brain scanning, it may be possible to diagnose and treat severe complications that may otherwise result in maternal mortality.

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