

# Acute Neurological Complications in Peripartum Period: A Retrospective Study

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## Abstract

**Introduction:** Acute neurological conditions are rare in young age. A mean age of pregnancy in female has increased in recent years and thereby increases the risk of neurological complications.

**Objective:** To study the clinical profile of patients presenting with neurological manifestations in a peripartum period.

**Study Design:** A retrospective study done at Government Theni Medical College and Hospital during November 2015 to April 2016. 30 cases studied. All patients in the peripartum period requiring neurological consultation were included in the study.

**Results:** A total of 30 women were included in this study. The incidence of neurological complications in the study period was 0.01%, but the mortality rate due to neurological complications was 6%. It occurred most commonly in primigravida.

**Conclusion:** This study concluded that proper management of pre-eclampsia can prevent eclampsia and reduce maternal mortality and morbidity.

**Key words:** Eclampsia, Hypertension, Mortality, Neurological

## INTRODUCTION

Acute neurological conditions are rare in young age. A mean age of pregnancy in female has increased in recent years and thereby increases the risk of neurological complications. Conditions like pre-eclampsia cause no significant damage as long as it does not progress to eclampsia. Pre-eclampsia and eclampsia are directly related to pregnancy whereas conditions such as cerebral venous thrombosis (CVT), ischemia, and hemorrhage are indirectly related to pregnancy. Neurological abnormalities contribute significantly to maternal mortality in eclampsia. In this study, we will discuss the varied clinical presentation of neurological complications in the peripartum period.

## MATERIALS AND METHODS

A retrospective study was conducted at Government Theni Medical College and Hospital in Department of Obstetrics and Gynecology during a 6-month period, from November 2015 to April 2016 involving a total of 30 patients. All patients with recent onset of neurological damage requiring neurological consultation were included in this study. Those who were known case of seizure disorder or cerebrovascular accident were excluded from study. The clinical presentation, imaging reports and prognosis of these 30 patients were followed up.

## RESULTS

The total number of deliveries in this study period was 3208. Of this, only 30 patients developed acute neurological complications accounting for 0.01%. The results of this study are shown in Tables 1-6.

## DISCUSSION

The most common age group affected by neurological complications is 20-25 years of age (40%). Complications

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**Table 1: Distribution of patients according to age**

Age group (years)	Number of patients
<20	4
20-25	12
25-30	8
30-35	5
>35	1

**Table 2: Distribution of patients according to parity**

Parity	Number of patients
Primi	19
Multi	10
Grand multi (>5)	1

**Table 3: Distribution of patients according to onset of acute neurological complications**

Day	Complication occurred
Antenatal	3
Intrapartum	2
PND 1	7
Within PND 7	13
>PND 7	5

PND: Postnatal day

**Table 4: Maternal morbidity following acute neurological complications**

Complication occurred	Number of patients
Seizure	23
Hemiplegia	2
Unconsciousness	5

**Table 5: Results of imagination studies**

CT report	Number of patients
Normal study	20
CVT	2
PRES	5
Hemorrhagic infarct	2
Granuloma	1

CT: Computed tomography, CVT: Cerebral venous thrombosis, PRES: Posterior reversible encephalopathy syndrome

**Table 6: Maternal outcome**

Recovery of patients	Number of patients
Discharged in good condition	25
Referred out	3
Death	2

occur more in primigravida (63%) than multigravida (27%). This incidence is comparable with the Al-Hayali *et al.* study where neurological complications occurred more in primigravida (85%) compared to multigravida (15%).<sup>1</sup>

This is because general incidence of preeclampsia is more common in primigravida. Risk factors for neurological complications include associated anemia and dehydration.<sup>2</sup>

A headache is the most common symptom of neurological conditions, and therefore, it is necessary to distinguish benign headache from headache due to complications in pregnancy. Moreover, the most common sign was seizure occurring in 76% of patients. In our study, 25 of the 30 patients had complaint of headache before the onset of neurological complications (83%). This is similar to Gupta study where a headache was the symptom in 90% of cases and seizure occurred in 92% of cases.<sup>3</sup>

The most patients presented in postpartum period (66%) with headache, seizures, visual disturbances, 23% on day of delivery and remaining 43% within a week of delivery, 1% in the antenatal period, <1% in intrapartum period.

Careful clinical evaluation of the patient can identify high-risk cases but it is the imaging studies that help us diagnose the disorder in the majority of cases. Hence, a computed tomography (CT) brain study was done for these 30 patients as per neurologist's orders and reports showed 66% of CT reports were normal with 6.66% each of CVT and hemorrhagic infarct. 16% cases developed posterior reversible encephalopathy syndrome (PRES), a reversible encephalopathy caused due to an acute increase in blood pressure.

PRES has rapid onset in the postpartum period with symptoms of visual loss, seizures, and headache. If blood pressure is controlled, symptoms resolve within days to weeks. CT findings are usually present. Magnetic resonance imaging (MRI) shows fluid-attenuated inversion recovery abnormalities in parieto-occipital lobes, with occasional intracerebral hemorrhage.

CVT presents in the third trimester or postpartum with symptoms of headache at onset. Seizures can occur and CVT evolves over several days. CT and MRI reveal non arterial and territorial infarcts.

As mentioned earlier, the incidence of acute neurological complication in peripartum period is 0.1% in our hospital. Of this 2 patients died due to neurological complications, accounting for a mortality rate of 6%. Comparing to overall maternal mortality in our hospital in the same study period, 2 out of 7 deaths were due to neurological complications (28%). This is similar to the incidence of 20% maternal deaths due to neurological diseases as mentioned in Hosley and McCullough study.<sup>4</sup> This is a significant proportion of maternal mortality stating the importance of monitoring neurological complications.

## CONCLUSION

The symptom of headache in a peripartum woman with or without our pregnancy induced hypertension must be taken seriously. A thorough neurological examination followed by imaging will pick up early lesion of CVT. Thus, the treatment could be planned and carried out which will reduce the complications significantly.

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