

Neurological manifestations in peripartum period

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ABSTRACT

Introduction: Several neurological diseases are unique to pregnancy and postpartum period. Some disorders increase in prevalence during this period.

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

Materials & Methods: A retrospective study carried out on 62 patients at Prathima Institute of Medical Sciences between July 2015 to July 2016 for a period range in 1 year. All the patients requiring neurological consultations were included in the study.

Results: Total number of deliveries in this hospital during the given period was 3100. The incidence of neurological disorders was 2% in the study. Mortality due to neurological diseases or complications were 2 cases. Both the cases were of rare entity.

Conclusion: Seizures and headache were the commonest neurological manifestations in the present study.

Keywords: Seizures, headache, epilepsy, cerebrovascular accidents, neuropathies.

INTRODUCTION

Although the incidence of neurological diseases are less in young peripartum patients, several diseases show increase in prevalence in this period. Some are unique to this peripartum period like pre-eclampsia and eclampsia and delivery associated neuropathies. Others like cerebral venous sinus thrombosis, ischemic stroke and intra cerebral hemorrhage and certain neuropathies increase in frequency and have considerable risk of morbidity and mortality.

The average age of pregnancy has increased in the last decade thus increasing pregnancy associated neurological complications leading to significant amount of morbidity and mortality^{1,2}. Pregnancy itself may effect the course of a disorder like epilepsy. The pregnant women is vulnerable in that many

medications and diagnostic evaluations are avoided due to concerns of causing harm to the fetus. As neurological diseases contribute to approximately 20% of maternal deaths³, it is important to identify these at risk patients. In this study we discuss the incidence of common neurological manifestations as well as fatal neurological complications in booked cases as well as those referred from outside hospitals as this institution being a tertiary referral center.

MATERIALS & METHODS

All pregnant women from 36 weeks of gestational age upto 6 weeks postpartum requiring neurological consultations were included in the present study. Patients developing neurological symptoms during the course of peripartum period were included and patients with eclampsia were excluded from the study.

All the cases were subjected to detailed history and examination including obstetric examination was done. Basic investigations like complete blood count, coagulation profile, blood sugar levels, liver and kidney function tests and serum electrolytes were done. Obstetric and maternal abdominal Ultrasonogram was also performed when necessary. Radiological imaging studies like CT/MRI Brain was done in 52 cases. Other relevant investigations like Electroencephalogram, electro neuro myography were done according to the need of the case. Whenever possible a definitive diagnosis was made. All patients were followed up regarding the outcome of the neurological disorder for a period of 3-6 months.

RESULTS

The total number of deliveries in this hospital during the above mentioned period were 3100 giving an incidence of 2% neurological complications.

Details of all the neurological complications presented in the study period are shown in Table 1.

Most common neurological manifestations were seizures (44) (excluding eclampsia) followed by neuropathies

(12), cerebro vascular accidents (4) and 2 rare cases with persistent altered sensorium. Out of the 44 cases of seizures, 28 cases were known epileptic seizure patients, 16 were new onset seizures due to cerebral venous sinus thrombosis (10 cases), calcified granuloma (6 cases). Out of the 44 patients with seizures 21 patients had abnormality on radio imaging studies. 10 were cerebral venous sinus thrombosis, 6 were granulomas and the rest 5 (known epileptic group) had gliosis as changes on imaging studies. Epileptic patients were given anti epileptic drugs such as Phenytoin^{4,5}, levetiracetam and oxcarbamazepine. Among the 44 patients with epilepsy all had uncomplicated deliveries. There were no gross congenital anomalies or malformations in the neonates whose mothers had used anti epileptic drugs in the pregnancy in the present study. The most common feature of cerebral venous sinus thrombosis was headache followed by seizures (Generalised) without focal neurological deficit. Cerebral venous sinus thrombosis was seen on MRI brain in 10 patients. Patients were started on anti coagulants (Heparin followed by warfarin). All the patients recovered completely and had no residue.

Out of the 12 cases of neuropathies 4 were carpal tunnel syndrome, 1 case of sciatic neuropathy, 3 meralgia paraesthetica, 1 guillian barre syndrome, and 3 bell's palsy were diagnosed. Carpal tunnel syndrome occurred during 36-39 weeks of gestational age. 1 case of guillian barre syndrome was seen in immediate postpartum period.

Out of the 4 cases of cerebro vascular accidents, all of whom presented with hemiparesis, 2 cases were due to haemorrhagic stroke due to hypertension and 2 cases were due to ischemic stroke due to antiphospholipid antibody syndrome and cardiac emboli respectively. Out of the 4 patients with cerebrovascular accidents all of the 4 patients presented with headache. All the 4 patients were started with mannitol. The 2 patients with ischemic stroke were also started with anticoagulants (Heparin was the choice). The 2 patients with hemorrhagic stroke were started on anti hypertensives. There was no residual deficit in both the patients .

Out of the 2 cases with persistent altered sensorium one case was amniotic fluid embolism and other was due to hypernatremic osmotic demyelination. Both the cases succumbed to death.

DISCUSSION

A wide variety of neurological disorders can affect women during peripartum period^{6,7}. Seizures followed by headache were the most common neurological symptoms in the present study. Therefore it is necessary to clearly distinguish benign causes of seizures and headache from other serious causes. In the present study seizures occurred in 44 patients out of the 62 patients which accounts to 70.9% incidence.

Headache occurred in 40 patients out of 62 patients which accounts to 64.5% of patients which is comparable to study by Gupta.

A comparative chart of the distribution of neurological disorders among various studies is given in Table 2^{8,9,10,11}

Most of the seizures in the study due to epilepsy were attributed to non compliance of the patient due to her fear of congenital anomalies to the fetus, loss of follow up for dosing adjustments, and long seizure free interval of patients. Most of the patients were known epilepsy with new recurrence. All the 28 patients who were known epileptics were started with antiepileptic drugs or dose adjusted or restarted during pregnancy according to the need. Seizures occurring in some patients inspite of taking antiepileptic drugs states the fact that seizure frequency may change during pregnancy due to lack of alterations in the doses of antiepileptic drugs and due to changes in antiepileptic drug binding protein¹². There were no gross congenital anomalies in the present study^{13,14}.

Table(2) shows the incidence of cerebro vascular accidents in various studies in comparison with the present study. 4 cases of hemiparesis were noted. Out of which two were due to haemorrhagic stroke due to hypertension and 2 were due to ischemic stroke due to antiphospholipid antibody syndrome and cardiac emboli respectively. Hypercoagulable disorders are a concern for stroke in the young and can be related to both venous and arterial thromboses. Pregnancy in itself a state of induced hypercoagulability which may facilitate the development of venous thromboemboli in a susceptible individual.

Out of the 12 patients with neuropathies 4 had carpal tunnel syndrome which occurred during 36 to 39 weeks of gestational age. Main feature was numbness and tingling. It was treated with drugs and splint.

One case of guillian barre syndrome was seen in immediate post partum period. It is an acute inflammatory demyelinating polyneuropathy leading to rapidly ascending paralysis and respiratory failure¹⁵. Patient in the present study had areflexic quadriparesis of 3/5 power. She was managed with immunoglobulins and physiotherapy. Patient recovered to ambulatory state over 3 weeks without any residual complication.

1 case of meralgia paraesthetica presented at 38 weeks of pregnancy. It is a painful syndrome involving the antero lateral part of the thigh due to compression of lateral femoral cutaneous nerve most commonly seen in pregnancy and diabetics. Sciatic neuropathy¹⁶ (1) case which radiates along the posterior aspect of the thigh and calf was seen at 37 weeks of pregnancy. Electro neuro myography was done and MRI

lumbo sacral spine was done to rule out disc diseases in both the patients. Patients were managed symptomatically

Bells palsy (3) has 6 fold preponderance in pregnant women compared to non pregnant more common in 3rd trimester and immediate puerperium^{17,18,19}. Some studies show association with pre eclampsia²⁰. But all the 3 patients in the present study were normotensive and were managed with steroids and physiotherapy.

Out of the 2cases which presented with persistent altered sensorium 1 was amniotic fluid embolism which is a life threatening obstetric emergency characterized by sudden cardio respiratory collapse, emboli in lungs and brain and disseminated intravascular coagulopathy(DIC). Present patient presented with dyspnoea, altered sensorium and impaired coagulation factors. CT chest and MRI brain showed emboli in lung and brain. The patient was put on anticoagulants.

In another case of hypernatremic osmotic demyelination which is a very rare entity characterized by extrapontine white matter hyperintensities which presented clinically with persistent altered sensorium and flaccid quadriplegia and persistent hypernatraemia. Both the patients of amniotic fluid embolism and hypernatremic demyelination succumbed to death.

CONCLUSION

Neurological presentations vary widely during peripartum period. Seizures are the commonest neurological disorder in pregnancy and puerperium period. Neurological complications in this peripartum period require early and prompt diagnosis and high index of suspicion. Appropriate management preferably under the joint care of neurologists and obstetricians is required to optimize maternal and fetal outcomes.

Table 1: Neurological complications

	Presentation	Total no. of patients
1	Seizures	44 a) Epileptic-28 b) New onset seizures:1)cvt-10 2) calcified granuloma- 6
2	Neuropathies	12 a) CTS - 4 b) Sciatic neuropathy-1 c) Meralgia paraesthetica-3 d) GBS -1 e) Bells palsy-3

3	Cerebro vascular accidents	4 a) Haemorrhagic stroke-2 b) Ischemic stroke-2
4	Persistent altered sensorium	2 a) Amniotic fluid embolism-1 b) Hypernatremic osmotic demyelination-1

Table 2: Comparison with various studies

Condition	To etal n=161(%)	Srinivasan etal n=68(%)	Gupta etal n=76(%)	Agarwal etal n=87(%)	Janaki etal n=97(%)	Present study n=62(%)
Seizures	102(63.3)	17(23.5)	22(28.9)	5(5.7)	30(30.9)	44(70.9)
Neuropathies	12(7.5)	1(1.5)	1(1.3)	2(2.3)	1(1.03)	4(6.45)
Cerebrovascular Accidents	7(4.3)	3(60.3)	12(11.9)	72(82.7)	48(49.5)	4(4.65)

Table 3 : Comparison of most common manifestations with various studies

Manifestation	Shanthirani et al N=30(%)	Guptha et al N=76(%)	Present study n=62(%)
Headache	25(83)	68(90)	40(64.5)
Seizures	23(76)	70(92)	44(70.9)

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Please cite this article as: Ranjith P, Meghana Rao. Neurological manifestations in peripartum period. Perspectives in medical research 2017;5(1):42-45.

Sources of Support: Nil,Conflict of interest:None declared.