Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2014; 2(5A):1559-1564 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com **DOI:** 10.36347/sjams.2014.v02i05.010

Research Article

Comparative Study of Eclamptic and Non-Eclamptic Convulsive Disorders in Pregnancy

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Abstract: The present study was undertaken with the aims to analyse pregnancy with convulsive disorder and to compare various aspects of eclamptic and non-eclamptic convulsions. It was a Hospital based prospective observational study performed in tertiary care medical college hospital. This study was conducted in department of Obstetrics and gynaecology Kamla Raja Hospital G R medical college MP over a period of six months from july to December 2013. Total 72 patients with convulsions were enrolled. Out of total 72 subjects only 13.33% were booked cases. Majority (66.66%) of the subjects were in 19-25 age group. Among eclamptic subjects 66.6% were Gravida-1 compared to 13.35% among non-eclamptic group. Majority (80%) of the eclamptic patients were brought in either drowsy or unconscious state compared to 58 % in non eclamptic group. Almost half of the patients in both the groups had convulsions during intrapartum period. First convulsions in half of the eclamptic group subjects happened between 28-40 weeks of period. Only 10 % of eclamptic patients had convulsion in hospital against 25% in non-eclamptic group. Vaginal delivery was observed in 11.66% in eclamptic versus 33.33% of non eclamptic patients. Majority (86.33%) of neonates in eclamptic group and 66% in non-eclamptic group were LBW. Thrombocytopenia was observed in 18% of eclamptic patients and only 8.33% of non eclamptic patients. Majority (80-86%) of newborns born to both eclamptic & non-eclamptic mothers were asphyxiated .Both the groups had similar neonatal mortality (8.33%). Epilepsy and cerebral malaria were among the commonest (25% each) causes of convulsions in non-eclamptic patients followed by Neurocysticercosis and meningitis (16.99% each).
Keywords: Eclampsia, Convulsions in pregnancy, PRES, CVT, Neurocysticercosis, Subarachnoid hemorrhage

INTRODUCTION

Convulsions in a pregnant patient are an obstetrician's nightmare [1, 2]. Prior to treatment options being available, the maternal mortality in excess of 30% and fetal mortalities greater than 60-80% were historically reported. Convulsions in a pregnant patient could be due to pregnancy induced hypertension causing eclampsia or could be non-eclamptic due to various causes like epilepsy, SOL like Neurocysticercosis, tuberculoma, metabolic like hypoglycemia/electrolyte imbalance, arterial events like hemorrhage or venous events like cortical venous thrombosis [1, 2]. We wanted to investigate how many of these convulsions were non-eclamptic, various causes, comparision on various maternal and neonatal aspects hence this prospective study was done.

Causes of convulsions in pregnancy vary in different areas. Majority of convulsions during pregnancy are because of eclampsia which is a preventable disease by increasing the awareness and regular antenatal visits. The incidence of eclampsia has often been viewed as an index of civilization in a country. The hospital incidence in India ranges from 1 in 500 to 1 in 30. In the US the incidence of eclampsia is about 1 in 3250 pregnancies while in Europe eclampsia complicates approximately 1 in 2000 deliveries [19]. The incidence of eclampsia is declining in the developed world due to adequate antenatal care and proper management of preeclampsia. However in the developing countries, the scourge of eclampsia continues and its incidence varies from 1 in 100 to 1 in 1700 in pregnancies [16-18].

MATERIAL AND METHODS

This study was conducted in department of Obstetrics and gynaecology Kamla Raja Hospital G R medical college MP over a period of six months from july to December 2013. During this period institute had 4494 deliveries out of them 72 patients were admitted with anteparum, intrpartum and postpartum convulsions. All relevant information was recorded in a predesigned proforma.

RESULTS

In the eclampsia group only 13% patients were booked against 33% among non eclamptic patients. (Table-1).

On observing the age distribution of patients two third of the patients in eclamptic group belong to 19-25 age group whereas half of the patients in non-eclamptic patients belong to this age group followed by 26-30 years age in both the groups. Exteremes of reproductive ages were least affected. (Table-2).

On analysis of parity status two third of the eclamptic patients were primigravida whereas only 16% were primigravida in non eclamptic patients. In non eclamptic group majority of the affected patients were multigravida. (Table-3).

There was no past history of convulsions in majority (86%) of the eclamptic patients. In non-eclamptic group 50 % of the patients had past history of convulsions. (Table-4).

On observing the blood pressure pattern almost all except one of the eclamptic patients had blood pressure on admission above 130/90 mm Hg whereas in non eclamptic group only one third of the cases had on admission blood pressure above 130/90 mm Hg. (Table-5).

The level of consciousness at the time of admission was poorer in eclamptic group. Almost 80% of the eclamptic patients were brought in either drowsy or unconscious state compared to 58 % in non eclamptic group. (Table-6).

Almost half of the patients in both the groups had convulsions during intrapartum period. (Table-7).

Among non-eclamptic subjects more than half had a period of gestation of either <28 weeks or postpartum period at the time of convulsions as compared to eclamptic subjects in whom 23% were having gestation period of 37-40 weeks and 25% had 28-37 weeks period of gestation . (Table-8).

Maximum patients had more than one episode of convulsions on admission in both groups. (Table-9).

Only 10 % of eclamptic patients had convulsion in hospital against 25% in non-eclamptic group. (Table-10).

Most of the patients were delivered by caesarean section in both the groups. 88% of eclamptic and 85 %of non-eclamptic patients were delivered by LSCS. Vaginal delivery was observed in 11.66% in eclamptic versus 33.33% of non eclamptic patients. (Table-11).

Majority (86.33%) of neonates in eclamptic group and 66% in non-eclamptic group were LBW. (Table-12).

Analysis of urine for albumin showed that none of the eclamptic patients had absent urinary albumin whereas in non-eclamptic group >90% urine albumin was absent or in traces. (Table-13).

Thrombocytopenia was observed in 18% of eclamptic patients. Only 8.33% of non eclamptic had platelet count <1 lac/mm^3. (Table-14).

Elevated Serum uric acid was found in 61.66% of eclamptic patients versus 25% of non-eclamptic patients. (Table-15).

Maternal mortality was 5% in eclamptic group against 16.66% in non-eclamptic group. (Table-16).

Majority (80-86%) of newborns born to both eclamptic & non-eclamptic mothers were asphyxiated .both groups had similar neonatal mortality (8.33%) . (Table-17).

Epilepsy and cerebral malaria was among the commonest (25% each) causes of convulsions in non-eclamptic patients followed by Neurocysticercosis and meningitis (16.99% each).TBM and cavernous sinus thrombosis each contributed to 8.33% of cases. (Table-18).

Table 1: Booking status of the study subjects

Booking status	Eclamptic		Non eclamptic		Total
	No.	Percentage	No.	percentage	
Booked	08	13.33%	04	33.33%	12(16.66%)
Unbooked	52	86.66%	08	66.66%	60(83.33%)
Total	60	100%	12	100%	72

Table 2: Age distribution of the study subjects

Age group years	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
<18	02	03.33%	00	00.00%
19-25	42	70.00%	06	50.00%
26-30	10	16.66%	04	33.33%
31-35	04	06.66%	01	08.33%
>35	02	03.33%	01	08.33%

Table 3: Parity wise distribution of the study subjects

Gravida	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
G1	40	66.66%	02	16.66%
G2	08	13.33%	04	33.33%
G3	06	10.00%	03	25.00%
G4	06	10.00%	03	25.00%

Table 4: History of previous convulsions among study subjects

History of convulsions	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	percentage
No previous history	52	86.66%	06	50.00
History of convulsions present	08	13.33%	06	50.00

Table 5: Blood pressure on admission in study subjects

Blood pressure Mm of Hg	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
systolic <130	01	01.66%	08	66.66
systolic >130	59	98.33%	04	33.33
Diastolic <90	01	01.66%	08	66.66
Diastolic >90	59	98.33%	04	33.33

Table 6: Distribution according to Level of consciousness on admission

Level of consciousness	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
Conscious	12	20.00%	05	41.66%
Drowsy	22	36.66%	03	25.00%
Unconscious	26	43.33%	04	33.33%

Table 7: Distribution according to Timing of convulsions

Timing of convulsions	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
Antepartum	14	23.33%	02	16.66%
Intrapartum	34	46.66%	06	50.00%
postpartum	12	20.00%	04	33.33%

Table 8: Distribution of subjects according to Period of Gestation at the time of convulsion

Period of Gestation	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
<28	01	01.66%	01	08.33%
28-37	15	25.00%	03	25.00%
37-40	14	23.33%	02	16.66%
>40	02	03.33%	01	08.33%
Postpartum	12	20.00%	04	33.33%
Not known	16	26.66%	01	08.33%

Table 9: Distribution according to Number of convulsions at the time of admission

Number of convulsions	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
01	16	26.66%	04	33.33%
02	18	30.00%	03	25.00%
03	18	30.00%	03	25.00%
≥04	08	13.33%	02	16.66%

Table 10: Distribution according to place of convulsions

Place of convulsions	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
At home	42	70.00%	05	41.66%
On the way	12	20.00%	04	33.33%
In hospital	06	10.00%	03	25.00%

Table 11: Mode of termination of pregnancy

Mode of termination	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
Abortion	00	00.00%	01	08.33%
Vaginal delivery	07	11.66%	04	33.33%
LSCS	53	88.33%	07	58.33%

Table 12: Birth weight of baby

Birth weight Kg	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
<1.5	02	03.33%	03	25.00%
1.5- <2	07	11.66%	02	16.66%
2- <2.5	43	71.66%	03	25.00%
≥2.5	08	13.33%	04	33.33%

Table 13: Urinary albumin on admission

Urine albumin	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
Nil	00	00.00%	08	66.66%
Trace	03	05.00%	03	25.00%
+1	15	25.00%	01	08.33%
+2	22	36.66%	00	00.00%
+3	17	28.33%	00	00.00%
+4	03	05.00%	00	00.00%

Table 14: Platelet count in study subjects

Platelet count lacs/mm^3	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
<1	11	18.33%	01	08.33%
>1	49	81.66%	11	91.66%

Table 15: Serum uric acid level in study subjects

Serum uric acid level	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
<6 mg/dl	23	38.33%	09	75%
>6 mg/dl	37	61.66%	03	25%

Table 16: Maternal outcome

Maternal outcome	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
Alive	57	95.00%	10	83.33%
Died	03	05.00%	02	16.66%

Table 17: Neonatal outcome

Neonatal outcome	Eclamptic (n=60)		Non eclamptic (n=12)	
	No.	Percentage	No.	Percentage
No asphyxia	12	20.00%	02	16.66%
Mild asphyxia	27	45.00%	06	50.00%
Moderate asphyxia	22	36.66%	02	16.66%
Severe asphyxia	04	06.66%	01	08.33%
Intrauterine death	05	08.33%	01	08.33%

Table 18: Causes of non-eclamptic convulsions

Sl. No.	Diagnosis	No.	Percentage
1.	Epilepsy	03	25.00%
2.	Cerebral malaria	03	25.00
3.	Neurocysticercosis	02	16.66
4.	Meningitis	02	16.66
5.	Cavernous sinus thrombosis	01	08.33
6.	Tubercular meningitis	01	08.33

DISCUSSION

Among eclamptic patients only 13% were booked patients it reflects the fact that eclampsia is more common in women who had no prior antenatal checkups. Booking status was better among non-eclamptic because 50% of them had prior history of convulsion similar result were reported by Agrawal *et al*. [4] (92%unbooked) and Yadav *et al*. [5] (92.7% unbooked) in eclampsia patients.

Seventy percent of the eclamptic patients were in 19-25 age group because two third of the patients were primigravida and most of the pregnancies in India occur in this age group. The age group was comparable to that reported by Devi *et al*. [13] (80%) and Yadav *et al*. [5] (83.3%).

In the eclampsia group two third of the patients were primigravida (66.6 %) whereas non-eclamptic convulsion were seen more commonly among the multigravida (83.33%). Similar findings were observed by most of the workers.

In the present study 86% of eclamptic patients had no prior history of convulsions the fact that reflects higher incidence of eclampsia in primigravida. In a study by Anoop *et al*. [15] no prior history was found in 61.5% of the patients in our study among the non eclamptic group history of convulsion was present in half of the cases. On the contrary in a study by Anoop *et al*. [15] it was present only in 17% of patients. Larger number of patients with past history of convulsions in non-eclamptic group was because epilepsy, neurocysticercosis and tuberculoma formed the major part of this group.

Higher number of eclamptic patients were brought in drowsy or unconscious state in comparision to non-eclamptic patients this finding could be because of more number of epileptic and neurocysticercosis patients causes transient loss of consciousness and better booking status. The number of drowsy/ unconscious patients was comparable to those reported by Yadav *et al*. [5] (92.6%).

Only 23% of eclamptic patients had convulsions during antepartum period which is lesser than that reported by Majhi *et al*. [6] (38%), Hungara *et al*. [8] (68%) and Samal *et al*. [9] (81%).

On observing the relationship of convulsions to period of gestation it can be concluded that eclamptic convulsions are very rare before 28 weeks whereas 8.33% non-eclamptic convulsion were found prior to this period. In eclamptic patients convulsions were very much unpredictable and without prior history and also most of them were unbooked. First episode of convulsion occurred at home in 70% of eclamptic cases against 41% of non-eclamptic subjects.

Higher number (83%) of LSCS in eclampsia is to avoid fetal and maternal morbidity. This finding is comparable to Anoop *et al*. [15] but higher than those reported by Varawalla *et al*. [14], Agrawal *et al*. [4] and Samal *et al*. [9].

Higher number of neonates was low birth weight in eclamptic subjects in comparison to non-eclamptic subjects. This is because of more compromised fetoplacental circulation in eclampsia due to longstanding pathological changes cause growth retardation in fetus. Majority of neonates (80-86%) in both the groups had asphyxia of various grades. The finding shows effect of convulsions on maternal oxygen saturation and thereby causing fetal hypoxia.

In non-eclamptic subjects urinary albumin was either absent or in traces in 90% of cases and it was 1+ in 8% of cases. Urine albumin was present in significant amount in all cases of eclampsia. Thrombocytopenia and higher level of uric acid was more common in eclamptic subjects.

Among non-eclamptic convulsions epilepsy, neurocysticercosis, tuberculoma formed the major part of the group. Similar etiology has been described by Srinija P *et al*. [11].

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