ABSTRACT

To determine the incidence of maternal and fetal outcome in eclampsia patients.

**Methods**

A hundred and twenty consecutive admissions with eclampsia managed in INDIRA GANDHI MEDICAL COLLEGE, NAGPUR were prospectively collated and analyzed. Maternal and fetal morbidity and mortality were recorded.

**Results**

The incidence of eclampsia was 1.2% of deliveries. Most (69.2%) of the patients had no antenatal care. In 93 (77.5%), the convulsions were controlled with diazepam and 22.5% magnesium sulphate. Maternal complications rate was 39.2% and use of Diazepam for control of convulsions increases complications (RR 3.12, 95% CI = 1.23–7.92, p= 0.02). Case fatality rate was 11.7%, diazepam use failed to achieve significant association with maternal death (RR 8.64, 95% CI = 0.53–140.29, p= 0.13). Stillbirth rate was 22.5% with significant association with diazepam use (RR 7.55, 95% CI= 1.07–3.09, p=0.04). Birth asphyxia was recorded in 39.1% and low birth weight in 25.8%.

**Conclusion**

The incidence of eclampsia in our hospital was very high, with corresponding high maternal and perinatal morbidity and mortality. Increased antenatal screening and use of magnesium sulphate to control convulsions will reduce the incidence and associated morbidity and mortality for both mother and fetus.

**KEYWORDS:**

eclampsia, outcome, maternal, fetal.
available to determine what happened during the antenatal period.

The mean age of the patients was 21.5 +/- 5.48 years. Seven, (5.8%) were 35 or more years and 69 (57.5%) were teenagers. Majority (55%) were nulliparous while 3.3% are of parity 5 and above. Eighty-nine (74.2%), had seizures before or during labour while 25.8% had postpartum eclampsia.

Convulsions were controlled with diazepam in 93 (77.5%) patients while the remaining 22.5% had magnesium sulphate. Sixty seven (55.8%) patients were delivered by caesarean section, and 18 (15%) had assisted vaginal delivery. The rest had normal vaginal delivery. Table 1 shows the maternal outcome. Fourty seven (39.2%) had complications. Relative risk of complication for diazepam as anticonvulsant is 3.12 (95% CI = 1.23–7.92, p = 0.02). Thirteen (10.8) patients had prolonged unconsciousness up to 7 days. Of these 3 had residual neurological deficit (quadriplegia in 1 and hemiplegia in 2 patients). Two patients had pulmonary edema and 4 had aspiration pneumonia. Six patients had acute renal failure but only one required dialysis. Five (4.2%) had HELLP syndrome and two patients with obstructed labour had vesicovaginal fistula. Another patient had cardiomegaly incidentally diagnosed on x ray; she had no cardiovascular symptoms. There were 14 maternal deaths giving a case fatality rate of 11.7%. There was no mortality in the 27(22.5%) patients treated with magnesium sulphate compared to diazepam (RR 8.64, 95% CI = 0.53–140.29, p = 0.13). The leading causes of death were cerebrovascular accident and pulmonary oedema. Consent for autopsy was declined by all the relatives of the patients that died in keeping with the local customs of the people. The attributions to the cause of death were based on the main clinical diagnosis prior to the death of the patient.

Table 1 Maternal complications of gestations complicated by eclampsia

<table>
<thead>
<tr>
<th>COMPLICATIONS</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prolonged unconsciousness</td>
<td>13</td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>6</td>
</tr>
<tr>
<td>Cerebrovascular accidents</td>
<td>5</td>
</tr>
<tr>
<td>HELLP</td>
<td>5</td>
</tr>
<tr>
<td>Pulmonary edema</td>
<td>6</td>
</tr>
<tr>
<td>Coagulopathy</td>
<td>4</td>
</tr>
<tr>
<td>Abruption</td>
<td>3</td>
</tr>
<tr>
<td>Cortical blindness</td>
<td>2</td>
</tr>
<tr>
<td>Cardiomegaly</td>
<td>1</td>
</tr>
<tr>
<td>Vesicovaginal fistula</td>
<td>2</td>
</tr>
<tr>
<td>Death</td>
<td>14</td>
</tr>
</tbody>
</table>

The maternal outcome is shown in Table 2. The stillbirth rate was 22.5%. The relative risk of stillbirth for diazepam was 7.55 (95% CI= 1.07–53.09, p=0.04). The data on early neonatal death was incomplete to determine what happened during the antenatal period. Six (5%) patients had this complications of which 4 were among the cases that died. A report of an international study group suggested that serious complications including mortality among patients with eclampsia can be predicted through disease modelling with signs and symptoms that include age, chest pain, or dyspnoea, among other things20. Although none of our patients had an autopsy postmortem and all attributed causes of death were clinically determined, we considered respiratory signs and symptoms to carry poor prognosis in these patients. Early recognition and strict monitoring in liaison with a senior anaesthetist is advocated to limit mortality from this complication.

Table 2 Perinatal outcome for gestations complicated by eclampsia

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stillbirth</td>
<td>27</td>
</tr>
<tr>
<td>Asphyxia</td>
<td>47</td>
</tr>
<tr>
<td>LBW</td>
<td>31</td>
</tr>
<tr>
<td>Nursery admission</td>
<td>19</td>
</tr>
</tbody>
</table>

Discussion

The incidence of eclampsia in our unit was 1.2% of deliveries. Onuh in Benin, Nigeria reported 1.32%7 and Okafor recently reported an incidence of 0.82% in Abuja, Nigeria 14. A high incidence of eclampsia is common in developing countries where most patients have no antenatal care which would allow for early recognition and treatment of pre-eclampsia. Most of our patients did not receive antenatal care; previous reports from this country have identified the paucity of quality antenatal care among eclamptic patients12,14. Efforts at mitigating identified barriers to antenatal care attendance have been shown to improve uptake of antenatal and maternity care, with positive impact on morbidity and mortality, including eclampsia. The pattern of presentation in our patients, further reflect the paucity of an effective screening and treatment of precursor pre-eclampsia. The majority of the patients are nulliparous and nulliparous and eclampsia during intrapartum eclampsia accounted for 74.2% of the cases. In developed countries with improved recognition and treatment of pre-eclampsia postpartum eclampsia is more common8. Most eclamptic seizures occur in the 3rd trimester: - 90% after 28 weeks and 80% are intrapartum or postpartum.

Complications were recorded in 39.2% of the patients, with a case fatality rate of 11.7%. Similar figures are reported from elsewhere in developing countries15. The case fatality rate in the United Kingdom is 1.8%. Prolonged unconsciousness and intensive care unit admission that are recorded here may be partly due to the use of diazepam for the control of convulsions in 77.5% of the patients and in part repeated convulsions that are likely to cause postpartum eclampsia. A report of an international study group suggested that serious complications including mortality among patients with eclampsia can be predicted through disease modelling with signs and symptoms that include age, chest pain, or dyspnoea, among other things20. Although none of our patients had an autopsy postmortem and all attributed causes of death were clinically determined, we considered respiratory signs and symptoms to carry poor prognosis in these patients. Early recognition and strict monitoring in liaison with a senior anaesthetist is advocated to limit mortality from this complication.

Pulmonary oedema and aspiration pneumonia are also associated with a high rate of maternal death and are indications for intensive care treatment. Six (5%) patients had this complications of which 4 were among the cases that died. A report of an international study group suggested that serious complications including mortality among patients with eclampsia can be predicted through disease modelling with signs and symptoms that include age, chest pain, or dyspnoea, among other things20. Although none of our patients had an autopsy postmortem and all attributed causes of death were clinically determined, we considered respiratory signs and symptoms to carry poor prognosis in these patients. Early recognition and strict monitoring in liaison with a senior anaesthetist is advocated to limit mortality from this complication.

Coagulopathy complicated 3.4% of the cases. This is higher than 2% in other reports16 and like Efetie and Okafor12 4.2% of our patients had coagulopathy complicated 3.4% of the cases. This is higher than 2% in other reports. Renal failure was seen among 5% of our patients; similar to the 5% of the patients in Spain17. In another report eclampsia and pre-eclampsia accounted for 67.2% of the patients requiring dialysis9. Five (4.2%) patients had cerebrovascular accident and 2 (1.7%), had transient cortical blindness. Transient neurological deficit including cortical blindness may affect up to 56% of patients with eclampsia3. Cerebrovascular accident (CVA) is a common cause of death in eclampsia18. In this study, 4.2% of the patients had clinical evidence of CVA with 50% mortality. It is believed to be the consequence of very high blood pressure both systolic and diastolic. Until recently, our policy for antihypertensive treatment in patients with preeclampsia/eclampsia was almost exclusively based on diastolic blood pressure. Recent evidence suggests that systolic hypertension on its own is as important in causing CVA as diastolic and warrants treatment on its own merit19. The high rate of CVA here was partly a reflection of the previous approach to systolic hypertension on one hand and late presentation among our patients that often arrive after repeated convulsions with no initial treatment to control seizures or the blood pressure.

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Coagulopathy complicated 3.4% of the cases. This is higher than 2% in other reports16 and like Efetie and Okafor12 4.2% of our patients had HELLP syndrome. This poses a challenge in the care of eclamptic patients in our setting, owing to the dearth of blood products required in preventing further bleeding related morbidity during surgery or following trauma of delivery. One patient with incidental finding of cardiomegaly and no cardiac symptoms was identified following a postpartum eclampsia. Hypertensive disorders are a common cause of preterm delivery of the patient. The stillbirth rate was 21.7%, and all 3 patients with abruption had postpartum eclampsia. Three (2.5%) of our patients had placental abruption. This is a common cause of renal failure, postpartum haemorrhage and perinatal death. The stillbirth rate was 21.7%, and all 3 patients with abruption had postpartum eclampsia. Hypertensive disorders are a common cause of preterm delivery of the patient.
labour, perinatal death and intrauterine growth restriction. Thirty five patients, (25.4%) had low birth weight and 7.5% were delivered preterm. Asphyxia (low Apgar scores at 5 minutes of age) was recorded in 39.1% of the neonates. Although hypertensive disorders are thought to confer some protection to respiratory distress syndrome, repeated convulsions at home before reaching the hospital and anticonvulsant therapy with diazepam are very likely contributors to fetal depression and low Apgar scores at birth. This may be a factor in the relatively high rate of admission to the special care baby unit in this report. We have since switched to magnesium sulphate for control of convulsions in this unit.

The modest sample size in this study and lack of autopsy limit the ability to critically appraise the direct causes and associated factors for maternal death. Furthermore, the lack of follow up after hospital discharge for the patients means that the data on early neonatal morbidity and mortality as well as maternal outcome for the rest of the puerperium was not available for analysis.

Conclusion

The incidence of eclampsia remained high in our unit and attending maternal and perinatal morbidity and mortality are increased. These can be reduced by more careful blood pressure control, and developing strategies that increase the use of maternity care services for both antenatal care and delivery to avail patients the benefits of screening and well established interventions. The impact of recently introduced magnesium sulphate on morbidity and mortality in the unit will be assessed in the future.

References