SPECIAL ARTICLE

ECLAMPSIA - NO ROOM FOR COMPLACENCY

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Eclampsia remains one of the major causes of maternal mortality. In developing countries, it is estimated that 10% of all maternal deaths are associated with eclampsia and approximately 50,000 women die each year having had an eclamptic convulsion[1]. In addition, there may be severe maternal morbidity associated with eclampsia including cerebral haemorrhages, cortical blindness, renal failure, disseminated intravascular coagulopathy, pulmonary oedema and psychosis.

Although it causes significant maternal and perinatal mortality and morbidity, eclampsia is a rare complication with improved socioeconomic standards and antenatal care. In the United Kingdom, Europe and in the United States, eclampsia occurs in 1 in 2,000 deliveries [2]. In the developing countries, the incidence ranges from 1 in 100 to 1,700 deliveries[3,4]. Low et al[5] in an article in this volume report an incidence of 1 in 2,207 deliveries in the 4-year period between January 1990 to December 1993 in the Kandang Kerbau Maternity Hospital, which is the largest maternity hospital in Singapore. This is a significant reduction from the incidence of 1 in 348 in 1957[6], 1 in 715 in 1968[7] and 1 in 772 reported in the same hospital in the 4-year period from 1980-1983[8].

Eclampsia is often insidious in onset and is usually, although not always, preceded by severe preeclampsia. Prevention of eclampsia may be achieved by preventing severe preeclampsia and by active management of impending eclampsia.

Currently, there is no predictive test that is of sufficient specificity and sensitivity to act as a method to screen the population for those at high risk of preeclampsia and eclampsia. A critical feature of the screening routine is the screening interval. Preeclampsia can begin and progress to a crisis, including eclampsia in less than 2 weeks. Therefore 4-week intervals between antenatal clinic visits, as is routine between 20 and 28 weeks gestation, leave some women exposed to undetected preeclampsia. These women who develop early onset disease between 20 and 28 weeks gestation usually go on to develop severe disease. For this reason, it has been advocated that all primigravidae, at least, are seen every 2 weeks after 24 weeks[9].

It can be difficult to identify accurately which patient is likely to have seizures. Sometimes a woman will have an eclamptic fit with no prior warning. Eclampsia usually occurs in women who have severe preeclampsia. In many units all women who have severe preeclampsia are treated with prophylactic anticonvulsants. In the United States, 99% of American obstetricians give magnesium sulphate during labour to women with preeclampsia[10]. Recently, questions have been raised about the use of prophylactic anticonvulsants for women with preeclampsia[11]. There is debate whether the benefits of such treatment outweigh the harm. Many anticonvulsants have potentially life threatening effects. For example, intravenous phenytoin can lead to cardiac dysrhythmias. Phenothiazines may provoke convulsions. Magnesium sulphate can lead to respiratory arrest and cardiac failure, and benzodiazepines can lead to respiratory depression in the mother and sedation in the infant. Thus every year, many thousands of women may receive prophylactic anticonvulsant therapy, with their known adverse effects, from which only a few will benefit. In the United Kingdom, it is estimated that 16% of obstetricians do not prescribe prophylactic anticonvulsants at all[12]. It has been suggested that when patients with severe preeclampsia are monitored closely and increased blood pressure treated effectively, treatment could be reserved for those who have had their first convulsion[13]. Good outcome has been reported from this policy in a unit where a small, specialised team gave close attention and continuity of care to these patients. However, this approach may not be appropriate in a less privileged population who receive less antenatal care. Debate about whether prophylactic anticonvulsants are worthwhile for women with preeclampsia will continue until the results of large randomised trials are available.

Singapore and Kandang Kerbau Hospital was recognised by the obstetric world following work on eclampsia by Sheares[6], and Lean et al[7]. Therapy with benzodiazepines was introduced to manage women with impending eclampsia and severe preeclampsia following the successful experience of 90 eclamptic patients managed with benzodiazepines and dihydrallazine as the antihypertensive agent by Lean et al in 1968[7]. In this study, there were 3 maternal deaths, of whom 2 had cerebral haemorrhage before admission. In a subsequent review of 40 cases, the majority of whom were admitted as emergencies, there were no maternal deaths[8]. The management protocol recommended 10-40 mg diazepam intravenously in bolus doses for prophylaxis or for treatment of convulsions, till the woman was well sedated and roused only with difficulty. Administering different drugs for different cases and inadequate doses of diazepam as bolus before commencement of infusion therapy is a reason for failure of preventing primary or subsequent eclamptic convulsions. Respiratory depression with diazepam can be reversed with flumazenil given intravenously. The occurrence of recurrent convulsions, despite such heavy sedation or sedation leading to respiratory depression, is an indication to manage the case with the anaesthetist by paralysis and assisted ventilation.

Which anticonvulsant to use in the prophylaxis or treatment of eclampsia is less debated. Earlier regimens were based on heavy sedation, either non-specific or with benzodiazepines. Intravenous phenytoin, chlormethiazole, heminaverin have also been proposed. In the United States, the prevention and treatment of eclampsia has long been based on the use of parenteral magnesium sulphate. Evidence about the effectiveness of any

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anticonvulsant commonly used for the care of women with eclampsia was sparse. The choice of anticonvulsant appears to be magnesium sulphate based on results of a recent large randomised trial[14].

The disease occurs rarely, and few clinicians will have the opportunity to have large hands-on experience in the management of this condition. It is therefore important that each unit has clear simple guidelines for the management of severe preeclampsia and eclampsia. Clinicians should stick to the same regime which they are familiar with and used to, both for cases of impending eclampsia and eclampsia. The mainstay of treatment in severe preeclampsia and eclampsia remains the early and aggressive control of blood pressure, seizure control and close fluid management[15]. Facilities for close monitoring must be available in the labour ward, and experienced obstetric and anaesthetic staff should be involved at an early stage in the care of these patients. Well-timed delivery remains the central issue of management.

Because the condition is rare, many clinicians will not have encountered it often enough to develop the expertise in the prevention, diagnosis and treatment of this condition. Thus the call by Low et al[5] to establish a confidential eclampsia register is timely. It has been estimated that the busiest UK specialist will encounter the condition only once every 2 years, if eclampsia is estimated to occur once in 2,000 deliveries[2]. The British Eclampsia Survey Team (BEST) study has demonstrated that the average hospital in the UK would only see 2 eclamptic patients a year[13], highlighting the fact that the average consultant in Britain would have little experience in managing eclampsia. The situation is no different in Singapore.

A confidential eclampsia register in the same mould as BEST, would mean that information about each woman with eclampsia may be collected in a retrospective note review by the medical practitioner. Combining and recording the national experience of eclampsia will provide clinicians with information of practical value on the rare occasions that they are required to manage a patient with eclampsia. It may also provide data upon which clinical trials may be implemented. In New Zealand, reliable population-based data on eclampsia is available as the condition is statutorily notifiable. The data demonstrate a real fall in the incidence from 0.32% of all births in 1928-1933 to 0.06% in 1959-1961, with a fall in the case fatality rate from 18.9% to 0.8%[16].

An eclampsia register also serves as a useful form of medical audit. Low et al[5] report that obstetric care was "substandard" in 44% of cases in their series. More importantly, two-thirds of their patients were booked, and 78% of these patients were being monitored and treated for preeclampsia in the hospital when they had their first convulsion. Similarly, in the report on confidential enquiries into maternal deaths in the United Kingdom 1988-1990[17], substandard care was identified in 89% of the 27 deaths from hypertensive disease in pregnancy. Eleven of the 14 eclamptics reviewed suffered fits after admission to hospital, and 8 of them had more than one fit. This suggests that initial treatment of preeclampsia was inadequate and that convulsions were not satisfactorily controlled thereafter.

It is likely that eclampsia will prevail until the aetiology and treatment directed to this aetiology, is found. Until such time treatment will be based on symptoms and signs of the disease. The identification of associated factors of preeclampsia and eclampsia, more intensive monitoring by relevant levels of staff, and standardised protocols for treatment instituted promptly will lead to better management of severe preeclampsia and eclampsia. To achieve improvement in prevention and management of the disease, all cases of eclampsia occurring in the country should be reviewed regularly to provide an analysis and overview of management.

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