CONFIDENTIAL ENQUIRY INTO MATERNAL DEATHS

Hard on the heels of the recent Report of the Association of Anaesthetists on mortality occurring within 6 days of anaesthesia comes the most recent report on Confidential Enquiries into Maternal Deaths in England and Wales 1976–78 (Tompkins et al., 1982). Perhaps the first point worthy of comment in relation to the information presented is that some 500 000 live births take place each year and there are more than 100 000 legal abortions. In all there were 428 deaths in a 3-year period, that is approximately 140 per annum. In short, pregnancy and delivery are really very safe procedures. They are so, however, because of advances in medical care. The risks are merely kept at bay by the general high standards of care and will certainly return if these standards are relaxed. No doubt it is because pregnancy and delivery are so safe that the advocates of natural childbirth are able to pretend that the risk does not exist at all, and that no precautions are necessary to ensure the safety of the mother and babe.

Anaesthetists, however, will be concerned that during the 3-year period from 1976 to 1978 there were 30 deaths associated with anaesthesia and 10 other cases where anaesthesia was considered to have contributed to the morbidity which led to death. This compares with the 31 cases associated directly with anaesthesia and six contributory deaths in the period from 1973 to 1975. In other words, there has been virtually no change in the overall number of deaths; however, the rate has increased slightly. It is interesting that the International Classification of Diseases, Injuries and Causes of Death (WHO, 1977) now contains a specific Code (668) for “Complications of the administrations of anaesthetics or other sedation in labour and delivery” and that deaths associated with anaesthesia need no longer be classified according to the procedure for which the anaesthetic had been administered.

There were no surprises, but many disappointments concerning the actual causes of death in patients in which anaesthesia was involved. Eleven patients inhaled gastric contents and died as a direct result, while in three others this was the event most probably leading to death. In nine of the patients Mendelson’s syndrome developed and patients succumbed over periods varying from one death in the operating theatre to one 37 days post-partum. Of special interest are three patients who died more than 6 days after anaesthesia. Perhaps intensive care facilities have become so effective that the criterion, that death potentially related to anaesthesia occurs within 6 days, may have to be reconsidered.

It is patently obvious that Mist. Mag. Trisil. (B.P.) is not the panacea, which many implied it might be, in the prevention of death from Mendelson’s syndrome, for half the patients who developed this complication had been treated with this agent. It is, of course, recognized that magnesium trisilicate can fail to increase the gastric pH to more than 2.5 or 3.0 unit and that this failure may be a result of inadequate mixing with the contents of the stomach or the presence of an usually large volume of gastric juice. There is also the possibility that the patient may not have swallowed the alkali or that it may have been vomited up. There remains the worrying possibility that particulate alkalis may cause pneumonitis if inhaled. This has been demonstrated in animals by Gibbs and colleagues (1979) for magnesium and aluminium hydroxides. There is a case to be made for the replacement of particulate alkalis by a clear solution of sodium citrate 0.3 mol litre⁻¹. Thirty millilitre of this solution is effective if given immediately before anaesthesia is induced (Foulkes and Jenning, 1981; Gibbs, Spohr and Schmidt, 1981; Viegas, Ravindran and Shumaker, 1981). For elective procedures a combination of oral and i.m. cimetidine or ranitidine have been found effective (Weber and Hirshman, 1979). An appropriate regi-
men is the administration of cimetidine 300 mg or ranitidine 150 mg on the evening before operation and an i.m. injection of cimetidine 300 mg 1 h before surgery. Alternatively, ranitidine 150 mg may be given by mouth 2–6 h before operation (McAuley et al., 1983). These drugs may be used in labour, but their effect will be delayed if gastric emptying times are prolonged by opioid analgesics. However, the H₂ antagonists have been only recently introduced into the practice of medicine and presumably one must await the contents of future triennial enquiries to assess their value.

It is disappointing to note that cricoid pressure was ineffectively applied in five patients who died of pulmonary aspiration. Cricoid pressure is a very effective procedure, but its correct application requires a skilled assistant and the procedure itself can make intubation difficult.

Difficulty with endotracheal intubation, in five patients resulting in inhalation of stomach contents, was responsible for 16 deaths in all. It seems likely that the remainder of the patients who succumbed had the endotracheal tube placed in the oesophagus, for they seemed to die from either the immediate or late effects of asphyxia.

In some patients there were multiple attempts at intubation, and indeed there seems to be an obsession which affects some anaesthetists that an endotracheal tube must be passed at all costs, even if the delay in passing the tube and effectively ventilating the patient's lungs leads to death. Anaesthesia to a depth classified by Geudel as III(ii) prevents vomiting even without an endotracheal tube and is less harmful to the neonate than having no mother.

Misuse of drugs was apparent in some cases. Thus, a patient was given ergometrine and although she was conscious she vomited and inhaled gastric contents. In other patients, large doses of sedative drugs were given, and in yet another, inadequate atropine was given to protect against the muscarinic effects of neostigmine.

Accidents with apparatus were relatively uncommon, but there is probably an irreducible minimum of deaths in any series from this cause, for no machine is totally without its risks, especially in the hands of those who do not fully understand the manner of its working.

Four patients died after receiving extradural anaesthesia. These deaths were justifiably classed as avoidable because basic principles were violated and supervision was inadequate or non-existent. One registrar anaesthetist was 5 miles away when his patient developed total spinal anaesthesia and died. A woman died after Caesarean section while inadequately supervised. She had received extradural analgesia in labour and general anaesthesia for delivery. An obstetrician gave extradural anaesthesia for suction termination of pregnancy and supplemented inadequate anaesthesia with papaveretum and diazepam. The patient aspirated stomach contents and died. Ergometrine i.v. caused fatal vomiting and aspiration during an extradural anaesthetic. Oxytocin should be used in place of ergometrine.

Among the miscellaneous causes of death, inadequate management of blood loss is outstanding as a cause of fatalities, being responsible for five deaths.

The Association of Anaesthetists' Enquiry into Deaths Associated with Anaesthesia laid emphasis on inadequate monitoring as a factor contributing to fatalities. The report on Confidential Enquiries comments "There are no situations of such emergency in obstetrics that the pulse and blood pressure cannot be estimated and trends of change followed".

The first statement made in the Summary and Conclusions must cause all departments of anaesthesia to consider very seriously how satisfactory are their own arrangements. The paragraph reads, "Of the 40 deaths associated with anaesthesia all but two were judged to have had avoidable factors. Most of these were attributed to combinations of lack of knowledge, inexperience, low general standards of care in labour and poor administrative practices. There is therefore a need to review the anaesthetic services in maternity units with the aim of providing better trained anaesthetists and of ensuring that the administrative arrangements are inherently safe for patients." In relation to this, special emphasis is laid on the need for every obstetric unit to have an established drill for dealing with those patients in whom difficulties in endotracheal intubation occur, for it is perhaps more from this complication than from any other that patients are lost needlessly.

The Report also recommends that anaesthetists and obstetricians should set out a drill for the management of severe haemorrhage for the guidance of junior doctors, for it is noted that deaths from postpartum haemorrhage have increased. Transfusion was sometimes very inadequate and simple, effective procedures such as aortic compression were not used.

A problem in many obstetric units is the provision of competent assistance for the anaesthetist so that cricoid pressure and other vital procedures can be
effective. Standards of care and assistance which are often taken for granted in the surgical theatre should surely be available for obstetric patients.

Yet another point worthy of comment is the fact that the detection of cyanosis is difficult in dark-skinned patients, and it is doubly necessary to monitor heart rate and arterial pressure in these women, watching for the signs of altered autonomic activity induced by hypoxia, rather than cyanosis.

A. R. Hunter
D. D. Moir

REFERENCES


