these patients die. What contribution the anaesthetic technique or drugs may make to mortality is not precisely known, but it may be as high as ten per cent.[1] Mortality is at one end of the spectrum of postoperative outcomes which extends through major complications such as myocardial infarction and respiratory failure to the discomforts of muscle pains, sore throat and nausea.

Most studies of anaesthetic agents and techniques have looked at specific aspects of drug action and have provided information on cardiorespiratory effects, neuromuscular interactions, sensitisation to catecholamine-induced dysrhythmias, and toxicity and metabolism of agents. Knowledge from these studies has enabled anaesthetists to think they know what is best for each individual patient. Yet there has never been a large-scale study on the comparative safety, efficacy, side effects and complications of different anaesthetics in the clinical setting. Information is lacking as to whether or not attempts to keep physiological parameters within normal limits during anaesthesia necessarily leads to better results in the postoperative period. Nor is it known if the theoretically greater safety of one agent during anaesthesia is offset by its higher postoperative incidence of side effects and morbidity.

To determine the relative importance to postoperative outcome of such factors as type of surgery, condition of the patient and anaesthetic drugs, a large-scale prospective study is being undertaken. The International Multicentre Study of General Anaesthesia is now in progress and uses methodology developed during the clinical evaluation of isoflurane.[2] The aim of the study is to determine, in 26,000 patients over the next two years, the safety and efficacy of the four commonly used supplements to nitrous oxide: enflurane, halothane, isoflurane and fentanyl. Ten university teaching centres in Canada and the United States are participating, with organisation and data collection centred at McMaster University. All centres follow the same protocol for anaesthetic agents and data collection. With the exception of pregnant women, any patient aged 18 years or older may be included, provided there is no specific contra-indication to any of the four agents. One only of the agents is used in each patient, assigned randomly to avoid anaesthetist bias.

Outcomes are divided into four categories. Type I includes death, myocardial infarction and stroke, events which are uncommon and not expected to be related causally to the specific agent used. Type II is major complications which may be life threatening and include respiratory failure, anuria and hepatitis. Type III is a mixture of safety and efficacy factors including shivering, nausea, headache, speed of recovery and a pain score in the recovery room. Type IV represents the patient's subjective symptoms. These are determined by a questionnaire, completed both pre- and postoperatively, which includes questions concerning feelings of weakness, dizziness and ability to concentrate. Patients are followed for up to seven days postoperatively to detect delayed complications and side effects and to determine how long these last. All results will be analysed by computer and the results are expected to be available during 1986.

References

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When all else fails - CMPA?

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It is not inappropriate that a seminar on Monitoring in Anaesthesia should consider the medico-legal implications. Any review of legal problems resulting from anaesthetic mishaps leads to the unequivocal conclusion that monitoring of the anaesthetised patient is indeed relevant.

Anaesthetists, like doctors in a number of specialties and more than in some, have been caught up in a disturbing trend in this country towards more and more costly lawsuits. By year end (1983), nearly 600 new malpractice lawsuits will have been

started against members of the Canadian Medical Protective Association and will likely involve close to 1,000 physicians and surgeons. Even more disturbing than the increasing incidence is a five-fold increase in the average cost of a medical malpractice lawsuit over the last decade and the clear indication that this trend is continuing with an actuarially predicted increment of at least 15 per cent per year.

Mishaps in anaesthesia fall into two main groups, the relatively minor but frequent incidents and the very tragic, disastrous and potentially very costly mishaps. Injury to teeth and dental prostheses during the anaesthetic is the most common single problem resulting in claims against members of the Medical Protective Association. Most of these claims are wholly defensible but, because of their numbers, are worthy of consideration by those doing anaesthesia. A careful preanaesthetic note of vulnerable teeth can be useful in defence.

Mishaps arising from epidural anaesthesia and analgesia, although increasing in number, are relatively uncommon; however, a number of cases of paraplegia or paraparesis have been reported. Perhaps even more distressing have been the several cases of cardiorespiratory arrest resulting from total spinal anaesthesia developing when a top-up dose was given by nursing staff. In preparing the defense of these actions it has become apparent to the Association that nursing staff in attendance on patients receiving continuous epidural anaesthesia must be aware of this potential problem, must be competent to recognize and must promptly report the complication. Always there must be someone immediately available to treat the difficulty.

Death or brain damage following hypoxic incidents have been, and still remain, the anaesthetic mishaps of most serious concern to the Association. Despite the attention focused on these matters in recent years, cases continue to be reported regularly to the CMPA. In those instances which have resulted in litigation, the relevant factors involved include: mechanical interference with an airway, displacement or misplacement of an endotracheal tube, questionable monitoring of the anaesthetised patient with failure to detect developing hypoxia, lack of training and experience of the anaesthetist and lack of familiarity with the anaesthetic equipment. In defending these cases the importance of a carefully maintained anaesthetic record cannot be overemphasized.

The issue of consent has not been a major legal problem for anaesthetists. When raised, it often has focused on an alleged failure to offer appropriate alternative forms of anaesthesia.

Alleged obstetrical negligence leading to brain damage of the newborn, resulting in litigation, has become a matter of concern in recent years. Any anaesthetist, who is involved in the resuscitation of such a neonate, may be included in the resulting lawsuit.

In conclusion, since litigation may follow even the best monitored and conducted anaesthetic, it is essential that anaesthetists keep in mind this possibility. Therefore, should there be any threat of such action, careful notes should be made and the Association's advice sought as soon as possible.