

covered. Obtaining second opinions from other anesthesiologists has not been of any substantial help.

Early in this work I came to the same conclusions as Dr. Hamilton. These unexplained arrests and deaths must have been due to negligence on the part of the anesthesiologist. In all probability there was an overdose, hypoxia, hypoventilation, or some combination of these errors. Or the records and deposition testimony were inaccurate, altered, or perjured. But as time has passed and I have become exposed to more cases, I have begun to change my thinking towards those views expressed by Dr. Keats. I have simply seen too many instances of cardiac arrest occurring during anesthesia administered by individuals whom I know personally, who do not lie, and who keep accurate records. Repeatedly I am confronted by instances where everything has been done properly, where there has been careful ongoing monitoring, where the dosages are minimal, the oxygenation more than adequate, and the ventilation satisfactory, only to have a sudden, unexpected cardiac arrest. It seems to happen too frequently to be explained by error by the anesthesiologist. More and more I am led to believe that we do not know enough about drug action and interaction or about the physiology of the neurologic and cardiovascular systems to rule out unknown factors and to put the blame upon the anesthesiologist unless there is clear evidence that he was at fault.

I am always amazed, shocked and saddened when an anesthesiologist testifies for a plaintiff and against a fellow anesthesiologist in a case where no definite cause for the accident can be found, to hear him state his opinion that it is the fault of the anesthesiologist. He will claim that the very fact that no cause is obvious is the reason that it must have been overdose, hypoxia or hypoventilation. It is almost as unsettling to hear a defense expert testify under similar circumstances that

it must have been a reflex, an allergy, or an interaction when there is no evidence of any of these. Surely we should all have the intellectual honesty to say simply that we do not know when the facts permit only what really amounts to speculation.

My plea is for continued research and investigation into the causes of death and injury associated with anesthesia. In the meantime, expert witnesses should refrain from giving opinions without facts and based upon the theory that if there is no definite explanation it must have been the anesthesiologist's fault. Let us give him the presumption of innocence, not guilt. At the same time, anesthesiologists must not be allowed to hide behind the "Act of God" theory, but must be held to high standards of practice so that the patient receives the best possible care and the incidence of arrest and death is held to a minimum. Only when his deviation from these standards is clearly the cause of the injury should he be held liable, based upon known facts, not speculation.

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*In reply:*—The letter by Doctors Turnbull, Smith and Banting supports my prejudice. The letter from Dr. Engel summarizes the dilemma very well. There may be some misunderstanding in the third paragraph of Dr. Engel's letter. I wish to emphasize that I did not state or imply a condition of negligence, nor did I imply alteration or perjury in connection with the hospital records, deposition or testimony. In the complex situation in which we live and practice, such un-

savory situations are not necessary for the production of undesirable outcomes.

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