
"The most discouraging moments in surgery are experienced when the anesthetist loses the patient through an error in technic or judgment... Postmortem examinations rarely reveal the few if any specific anatomic changes caused by anesthesia. The statistical reports of anesthetic deaths which appear from time to time in medical literature stress mortality according to drugs used. Statistics of this sort mean little because they appear to incriminate the drugs and do not take into consideration the manner of administration, the skill of the administrator and the condition of the patient... Many anesthetic accidents occur during the induction period... Nitrous oxide and ethylene... are innocuous mild anesthetic agents... Without proper preanesthetic sedation, anesthesia is not obtained unless the concentration in the alveoli is increased to the point of suboxygensation. Inexperienced anesthetists 'push' these gases beyond the point of safety to obtain surgical anesthesia. Fatalities under these circumstances result from asphyxia... The discreet anesthetist fortifies his gas mixture with ether if there is a tendency toward suboxygensation... In addition to suboxygensation, the anesthetist may have difficulty in maintaining anesthesia once it is established and allow the patient to emerge from the third into the second stage. Retching and vomiting invariably occur. Aspiration of liquid or solid material may, in this event, swiftly cause death from obstruction of the trachea and bronchi or initiate pulmonary complications which cause death postoperatively. Fatalities due to aspiration are common during obstetrical anesthesia. Asphyxia may also be a consequence of improper premedication. The omission of atropine or scopalamine preoperatively is, as a rule, followed by a copious secretion of mucus and saliva. Secretions in the larynx, trachea and bronchi obstruct the airway. The maintenance phase likewise is not without dangers but they are not as numerous as in the induction period. Failure to maintain an adequate airway and overdosage are our chief concerns during this period. Overdosage in combination with anoxia, shock or hemorrhage presents a different picture, however. Any one of these factors combined with overdosage is the most frequent cause of death during the maintenance of anesthesia, particularly in 'poor risk cases.'

"The termination of anesthesia and the immediate post-anesthesia period, like the induction period, is fraught with considerable hazard. Indeed approximately half the anesthetic deaths occur at this time. Again, asphyxia from one cause or another is the underlying factor. Aspiration of vomitus, premature removal of intratracheal catheters, 'swallowing of the tongue,' and laryngeal spasm are some of the most common causes. There is a tendency at this time for members of the operating team to relax their vigilance and to relegate the patient to the care of inexperienced individuals. The careless anesthetist neglects the patient to complete the chart, to prepare for the next case, or to tend to other comparatively trivial chores. The anesthetist should observe the patient closely until all reflexes have returned and the possibility of complications has passed. During this time, he should be prepared to deal with respiratory obstruction, emesis and other possible complications... Fatalities, when certain drugs are employed, may occur regardless of the skill of the anesthetist. Fortunately, nitrous oxide, ethylene and ether possess no inherent dangerous qualities.
On the other hand, the same is not true for chloroform, ethyl chloride and cyclopropane because they disturb cardiac action. Death from cardiac failure occurs even when these drugs are carefully administered by a skilled individual. . . . Intravenous anesthesia is simply induced and maintained. Unfortunately, this simplicity of induction and maintenance appeals mostly to those who are unfamiliar with its hazards and to those who tend to regard anesthesia lightly. . . . Individuals not aware of the dangers of anesthesia invariably concentrate their attention on the intravenous injection and neglect the patient almost entirely. Asphyxia from obstruction is as real in intravenous anesthesia and as potent a hazard as in inhalation anesthesia. Another question we should ask is, will intravenous anesthesia be selected for an operation about the head and neck? Too often the fact that the patient must breathe is ignored and intravenous anesthesia is decided upon because the anesthetist is removed from the operative field. Fatalities occur because the anesthetist does not have control of the airway. Another question we should ask is, will a laryngeal spasm develop and will the anesthetist recognize and handle the situation skillfully? Laryngeal spasms are not uncommon when barbiturates are used for deep hypnosis. Such spasms are often so severe that they initiate the train of events that lead to asphyxiation of the patient. The respiratory depression, so characteristic of anesthesia with barbiturates, the progressive decrease in sensitivity of the respiratory center, and the irreversible and uncontrollable nature of the method are all features which we should consider carefully before submitting to this form of anesthesia. As in inhalation anesthesia, the greatest hazard of intravenous anesthesia is asphyxia from obstruction of the respiratory passages from one cause or another. . . . Those who use or have seen spinal anesthesia used extensively know that it, too, is not without hazards. . . . Death from spinal anesthesia is caused by one of two mechanisms: (1) respiratory failure, and (2) circulatory failure. Both complications appear early in the course of anesthesia and both are avoidable. . . . The well-trained anesthetist closely observes both respiration and circulation. When respiratory failure occurs, artificial respiration by any instantly available method is indicated.

"Reactions due to toxicity are due to accidental intravascular injection of the spinal anesthetic drug. These are rare occurrences but are possibilities. . . . In studying anesthetic deaths, it is remarkable how frequently an anesthetist, in stating the sequence of events leading to the accident, relates that 'the patient was doing well and all of a sudden he died.' However, it is also interesting to note that, upon further questioning, certain significant prodromal signs were not recognized. A change in the character of respiration, or pulse, twichings of small muscles, and so forth, all of which are significant warnings of impending disaster to a trained, experienced observer, were overlooked. Failure to observe and heed these warning signs is not due to carelessness or neglect, but rather to a lack of knowledge of the science of anesthesiology. . . . A good anesthetist is not one who knows how to overcome a difficult situation, but one who knows how to avoid one."

J. C. M. C.


"A satisfactory definition of narcosynthesis would be the following: