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Awareness during Surgery

SINCE THE ADVENT of general anesthesia, it has been the goal of the physician to provide the patient a state of unconsciousness, during which he would be immune from pain and in as safe a physiologic state as possible. The introduction of curare as a muscle relaxant in 1942 allowed the use of lower doses of toxic agents in maintaining relaxation, but the increase in safety has been accompanied by a greater difficulty in monitoring the patient's level of consciousness. As a result, we have known for a long time that patients can awaken during anesthesia¹⁻³ and periodically are reminded of this unsettling fact.^{4,5} Interestingly, patients rarely complain about this experience, but, as described by Bogetz and Katz in this issue of ANESTHESIOLOGY,⁶ they may very well describe a recollection when asked properly.

How many other patients have some form of registration of the experience in their minds cannot be known. A number of years ago, in an attempt to replicate the work of Levinson,⁷ but using deep anesthesia for major surgery rather than light anesthesia in a dental procedure, we were able to recover a noxious verbal stimulus. By means of hypnosis, the patient was brought back to the operative time and was able to account in exact detail what was said.* We found this experiment too inhumane to continue and were unsuccessful in subsequent attempts at recovering benign stimuli by such a method. Perhaps patients register stimuli only when they have a profound significance. In this context, it might behoove us to rethink the routine use of amnestic drugs. While these have seemed to serve a most useful purpose in creating a calm aftermath to surgery, they mainly may, in reality, protect

us from hearing upsetting details from patients, details that now are stored in the cerebral cortex but no longer recalled consciously. We have long known that the repeated recounting of an upsetting event seems to release the tensions of a person who has experienced it and that the unconscious storing of a traumatic memory may well act as a chronic psychic irritant.

Awareness under general anesthesia was obviously unpleasant, but until Meyer and Blacher, in 1961,⁸ described a series of patients who awakened from light anesthesia during heart surgery while paralyzed by succinylcholine, no one had noted any serious sequelae of such an experience. These patients had a postoperative traumatic neurosis marked by 1) anxiety and irritability, 2) repetitive nightmares, 3) a preoccupation with death, and 4) reluctance to discuss the symptoms lest they be thought insane. They were confused as to whether or not they really awakened during surgery and were cured by a simple explanation that they had indeed been conscious during the operation. The syndrome was further elaborated in 1975⁹ with an emphasis on the feeling the patient had that something had gone terribly wrong, else why would he or she be awake. The state reminded us of Claude Bernard's discussion of curare, when he described "sensitive beings locked in immobile bodies. . . . The torture which the imaginations of poets has invented can be found produced in nature by the action of the American poison."¹⁰

The symptoms, including repetitive dreams, resemble those seen following other acute psychic traumata. But the awareness itself is not the important issue, since patients calmly undergo surgery with local, spinal, or even hypnotic anesthesia. It is rather the sense of passively experiencing something over which one has no control, where the feeling is that things are not going as expected

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* Unpublished data, Blacher RS, Winkelstein C, Meyer BC.

yet cannot be corrected by calling for help. All this occurs in a somewhat obtunded state, which makes the patient question whether what he experienced could even possibly have taken place. The rare patient who is very much awake, paradoxically seems to suffer fewer traumatic symptoms.

While spontaneous complaint is rare, even the routine of asking about recall usually does not yield a very high number of such patients and a traumatic neurotic reaction is even more rare. The anesthesiologist is placed in an uncomfortable position. On the one hand he does not want to fail to provide adequate anesthesia to even one patient; on the other hand he is concerned with whether this goal will cause him to over-medicate everyone else. Anesthesia in the trauma patients reported in this issue really heightens such a dilemma for the anesthesiologist, since the rate of recall seems so high. It causes us to raise questions about dealing with the problem in general. How should one approach nonemergency patients? For example, should one prepare them for the possibility of waking up? I believe that this would add an increased burden of anxiety on the patient already struggling with concerns about the operation.

Since severe psychologic reactions are unusual and also usually diagnosable, can one ignore the possibility of awakening and just deal with a traumatic syndrome when it appears? I believe that a better approach would be one of expectation, with the anesthesiologist assuming in all cases that the patient *may* be awake. This is especially true in those at high risk, such as in trauma or other situations where low levels of anesthetic agents are used. An occasional word of encouragement and reassurance and a pat on the cheek would give the anesthetized but inadvertently awake patient a sense that the anesthesiologist knows he is awake and that therefore he is *supposed* to be in this state, even if he is conscious and aware of the ongoing surgery.

Bogetz and Katz do not report the number in their series that actually felt painful sensations, but even those who felt something did not complain spontaneously. Our patients rarely have complained of pain, even while vividly describing the operative situation. Several have described surprise not feeling more uncomfortable physically, since their first reaction on awakening was a dread anticipation that they would next undergo terrible pain. We have not correlated the actual experience of pain with the intraoperative use of opiates, but trauma patients such as those

described in the current study might well lend themselves to an evaluation of the routine use of such drugs in surgery with a high risk of awareness.

While the search for better chemical agents will certainly continue, it is perhaps unreasonable for the anesthesiologist, at this time, to make the demand on himself to obliterate all awareness. To make the anesthetic state tolerable may be all that he is able to do at this point, considering that the alternative might be to expose the patient to a dangerous level of anesthesia. Reassuring the patient while he is anesthetized, inquiring postoperatively about awareness so that the patient may have a chance to discuss it, and treating any traumatic reactions that on occasion may ensue, all should contribute to the prevention of long-term psychic difficulties. While total oblivion must be the goal, it may not always be achievable without unduly endangering the patient with excessive amounts of anesthetic agent. The anesthesiologist walks a tightrope in this area and with our current state of knowledge cannot expect perfection on both sides of the balance.

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