

Observations of "Acupuncture Anesthesia" in the People's Republic of China

From May 1 to May 22, 1974, I had the pleasure of visiting the People's Republic of China as a member of the Acupuncture Anesthesia Study Group. The chairman of the group was E. M. Papper, MD; the vice-chairman was Frederick W. L. Kerr, MD. Other members of the study group included Paul R. Burgess, PhD; Kenneth L. Casey, MD; C. Richard Chapman, PhD; Ronald Dubner, DDS; Francis F. Foldes, MD; E. S. Siker, MD; Arthur Taub, MD; James R. Townsend, PhD; and Denise F. Emery. The study group was sponsored by the Committee on Scholarly Communication with the People's Republic of China of the National Academy of Sciences, the Social Science Research Council, and the American Council of Learned Societies. Our purpose was to study "acupuncture anesthesia" in an attempt to appreciate the current state of the art in the People's Republic of China. A comprehensive report is being published by the entire study group. What follows is a brief résumé of some of my personal observations.

Since returning to the United States, the most common question I have been asked is, "Does acupuncture anesthesia work?" Unfortunately, one cannot answer with a simple yes or no. Yes, we did see patients successfully operated on under acupuncture anesthesia with little or no apparent discomfort; however, we also saw other patients who appeared to suffer much discomfort during attempts to perform surgery with this technique.

In discussing the technique, our Chinese hosts reported that while there was some variation in the success rate with the operative procedure, in general, approximately 90% of the patients selected for acupuncture anesthesia were operated on "successfully" without resorting to general anesthesia. In order to interpret these figures it is important to understand the Chinese classification of "successful." The Chinese grade the results of acupuncture anesthesia in four categories; the first three (grades 1 through 3) are all considered successful. Grade 1 is used when the patient has little or no discomfort during the operative procedure and there are minimal changes in vital signs. Grade 2 is used when the patient has slight dis-

comfort that can be controlled with small doses of narcotics and local anesthetics and he may have moderate changes in vital signs. Grade 3 implies that the operation can be successfully completed, but the patient has periods of moderate to severe pain, changes in vital signs, and larger doses of parenteral medication and local anesthesia are necessary to complete the procedure. Grade 4 is a failure, and the operation must be abandoned or the patient given general anesthesia.

The Chinese repeatedly pointed out that acupuncture anesthesia still is an experimental technique and represents an attempt to blend traditional Chinese medicine with Western medicine as a means of improving the health care given to their people. They acknowledged that some of the present problems with acupuncture anesthesia are that many patients suffer incomplete analgesia, that muscle relaxation may be poor, and that patients frequently complain about a feeling of traction when viscera are manipulated. This is particularly true with operations within the abdominal cavity.

They also stressed the need for proper patient selection. Acupuncture anesthesia is not recommended for every patient, but rather is selected for those in whom an accurate preoperative diagnosis has been established, the surgical procedure promises to be uncomplicated, and, after an explanation of the advantages of acupuncture anesthesia and the disadvantages of general anesthesia, the patient agrees to acupuncture. In some patients there is considerable preparation, eg, patients who are to undergo thoracotomy must successfully complete a variety of breathing exercises for approximately one week preoperatively. In addition to the anesthesiologist counseling the patient regarding his anesthesia, the surgeon and other patients in the hospital ward who have undergone acupuncture anesthesia also inform the patient of what they believe to be its advantages. Each step of the surgical procedure also is explained. Patients who are nervous or apprehensive are not considered suitable candidates. It was stressed repeatedly that in order for acupuncture anesthesia to be successful, the surgeon must be precise, rapid, and extremely

gentle, eg, tissues are handled with a minimum amount of trauma and the presence of retractors of any type in the wound seldom is seen.

The study group had the opportunity to observe, in depth, 48 patients who were preselected to have surgery performed under acupuncture anesthesia. The operations included such diverse procedures as tooth extractions, craniotomy for tumors, ophthalmologic surgery, tonsillectomy, thyroidectomy, pulmonary lobectomy, mitral commissurotomy, repair of ventricular septal defect with extracorporeal circulation, subtotal gastrectomy, ovarian cystectomy, abdominal hysterectomy, inguinal herniorrhaphy, arthrotomy of the knee, and so on. Unfortunately, we did not observe sufficient numbers of procedures in each category to be able to attach any statistical significance regarding the success rate with a particular type of surgical procedure. Of the 48 procedures we saw, our group thought that 25 patients (52%) fell into the category of grade 1, and ten patients (21%) into the category of grade 2. The remainder (27%) were classified as grade 3 or 4. There is no way to predict whether the same statistics would apply to a group of patients similarly selected and prepared in the United States. However, if one makes the assumption that the American patients' response to surgery and discomfort is identical to that of the patients we observed in China, grade 1 results would be applicable to both populations. I also believe that many of our patients would accept a grade 2 result, but that grade 3 and 4 would be unacceptable.

There is no question that patients are awake, alert, and most are capable of walking from the operating table to their bed immediately after surgery with acupuncture anesthesia. Most of these patients require a minimum of postoperative analgesic drugs and, although we did not have the opportunity to observe patients postoperatively, I would expect that whatever morbidity might be associated with excessive sedation and lack of ambulation in the postoperative period would be eliminated by this technique. The trade-off, unfortunately, is that at least 27% of patients would have to be converted to another anesthetic technique once surgery was started. I also am concerned as to whether the apparent rapid recovery in the postoperative period following acupuncture anesthesia could be attributed to the fact that most procedures we witnessed were performed rapidly, with meticulous handling of tissue, and with almost no retraction. Thus, the trauma to tissues was minimized. It would be impossible, without suitable controlled studies, to be able to separate the importance of intraoperative tissue trauma from drug-induced anesthesia in contributing to postoperative morbidity.

Another problem in determining the applicability of this technique to our own patients is that we saw little mechanical or electronic monitoring equipment of recent vintage used clinically in the operating rooms. Some patients are monitored only with pulse rate; however, most are monitored with the Korotkoff blood pressure method, pulse rate, and respirations. Even in the heart operations, sophisticated techniques of monitoring the cardiovascular system or adequacy of oxygenation were not employed.

On the other hand, acupuncture anesthesia provides for a very sensitive additional monitoring tool beyond that which usually is available in the United States. That is, the patient is awake and can inform the surgeon and anesthesiologist when tissues are handled roughly since he feels excessive "heaviness," "traction," or "pain." It also is possible to monitor the level of the patient's consciousness during cardiopulmonary bypass merely by talking to him and observing the appropriate responses.

It is possible that even though a patient may be able to tolerate thoracic surgery under acupuncture without apparent discomfort, significant hypoxia could occur with an open thorax to question its efficacy. I personally observed three intrathoracic procedures (a pulmonary lobectomy, a mitral commissurotomy, and a repair of a ventricular septal defect with extracorporeal circulation) and did not observe obvious cyanosis; however, this is an extremely crude method of evaluating oxygenation. We were told that general, endotracheal anesthesia is used for patients with generalized pulmonary disease because of the possible danger of hypoxia in these patients.

In addition to our visits to the operating theater, we also had the opportunity to meet with a number of physiologists in Peking, Shanghai, and Canton. Considerable effort currently is being expended in an attempt to find a physiologic mechanism for acupuncture anesthesia. Most of these studies still are quite preliminary and few have been published. There is some suggestion that there might be a neural or a humoral mechanism; however, the studies suggesting this are neither sufficiently complete at present to undergo careful critical review nor do they specifically separate acupuncture from other forms of stimulation.

At this point acupuncture anesthesia does not appear to be anesthesia in the classical sense. From what we have seen, a more accurate term would be "acupuncture hypalgesia." We also are not in a position to point to a specific mechanism of action. However, there is no question that we observed a number of patients who laid on the operating table without changes in expression or vital signs while surgical procedures were being performed. Other patients were not as fortunate and experienced traction, heaviness, or pain.

Assuming that acupuncture does produce analgesia and was responsible for the grade 1 successful cases that we observed, one would have to propose a theory of mechanism of action. My personal observation would be that the pain threshold is different for each patient and that some will tolerate general surgical procedures without interpreting this as "pain" if they are distracted by other means, be they prior conditioning, auditory, visual, or tactile. The "needling" feeling that accompanies acupuncture when done manually, or the response to electrical stimulation, would produce a distraction of significant proportions. If one further assumes that there is a hierarchy of perception of stimuli for patient response, one could postulate that the stimulus of surgery is not as potent as the distraction stimulus of acupuncture and patient counseling. In those cases acupuncture anesthesia would be a suc-

cess. On the other hand, if the stimulus from the surgical site is more forceful, for example, excessive traction on viscera, it would be at a higher point in the hierarchy of perception and would be interpreted by the patient as "breaking through" the distraction of acupuncture, patient counseling, and preparation. Regardless of whether there is a suprasegmental, neural, humoral, or traditional meridian mechanism for acupuncture entering its way into the hierarchy of perception response, this theoretical basis for the successes we saw would be possible. Further evidence for such a theory is the fact that in the United States we sometimes can supplement a regional anesthetic by talking to the patient, having him listen to a radio, patting his forehead, and so forth. These stimuli are distractions in themselves, perhaps not as potent as acupuncture, but they frequently permit surgery to proceed.

Thus, at present we are not in a position to determine whether acupuncture anesthesia, analgesia, or hypalgesia will have widespread applicability to the patient population of the United States. It appears, at present, that it is too unpredictable to be attempted on a wide scale. The question still looms as to whether the tolerance to surgical trauma is greater in the Chinese population of today than it is in Americans. These facts suggest that careful, clinical studies should be attempted at a small number of insti-

tutions in the United States in an attempt to establish its transferability and reproducibility in our population.

Regardless of whether acupuncture will have an important role in our anesthetic armamentarium in the future, there are some lessons that can be learned from our experience. Apparently there is a wide differential in patient reaction to pain. We saw many patients whom we considered to be in pain. They denied this, but rather talked about feelings of traction, soreness, and heaviness. It is entirely possible that many physicians, in a desire to make their patients comfortable, actually do them a disservice by oversedating them, particularly during the postoperative period. We need to explore the possibility of reducing intraoperative and postoperative discomfort by better preoperative counseling and reduction of unnecessary intraoperative trauma, rather than by overuse of drugs. Certainly the results of our observations suggest that we all need to be introspective and review our own practices for the benefit of our patients.

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