

CRITERIA IN THE CHOICE OF ANESTHESIA

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THE anesthetic agent and the method by which it is administered should provide the patient with the greatest possible safety to assure an ultimate complete recovery from pathological conditions which may be present as well as from the effects of surgery and the anesthesia. In choosing the anesthetic agent and method that will fulfil this objective several criteria must be considered. These criteria will be considered and an attempt will be made to compare their relative importance in the choice of anesthesia and their part in the ultimate recovery of the patient.

Criteria in the choice of anesthesia may be grouped under the following headings: (1) The effect of the anesthesia upon the existing pathology in the patient, (2) Aid to the surgeon, (3) The site of operation, and (4) The ability and judgment of the anesthetist.

Effect Upon Existing Pathology.—The effects of anesthesia and surgery on the patient are many. Anesthetic agents disturb physiological functions. They may irritate and even damage parenchymatous structures, sometimes irreparably. Anesthesia may aggravate existing pathological processes or stir up latent disease. Anesthesia as well as surgery may markedly disturb respiratory, circulatory, and nervous systems. Such disturbances are markedly increased by errors in the technic of administration.

The anesthetic administered should be one that will not burden an already damaged structure. Thus, patients suffering from damage to a parenchymatous organ should not be subjected to anesthesia which will markedly interfere with the function of or produce further damage to that organ. One of the responsibilities of the anesthetist is to anticipate, and, whenever possible, to compensate for disturbances in physiological processes which are already present or which may be occasioned by the surgery. The surgical removal of a substernal thyroid causing tracheal compression is an example of an instance where the anesthetist must compensate for a state of disturbed physiology already present in the patient. An important duty of the anesthetist, in addition to providing relief from pain, is to satisfy properly the patient's oxygen requirements throughout the entire surgical procedure. Intrathoracic surgery is an example of the disturbed physiology occasioned by surgery which the anesthetist must be prepared to keep at a minimum.

Aid to the Surgeon.—With a steady increase in technically difficult

operative procedures the surgeon is entitled to receive, where possible, every available aid the anesthetist can give him. The surgeon has the right to expect adequate exposure and relaxation in patients whose physical state will safely tolerate the anesthetic required. He is ordinarily entitled to a proper surgical field, particularly about the head and neck, free from the presence of the anesthetist and obscuring anesthetic appliances. Surgery of the bile ducts, of the stomach and duodenum are examples of operative procedures in which satisfactory relaxation is important.

Satisfactory exposure may be greatly facilitated by postural changes of the patient. The important considerations here are the effects anesthesia may have upon the desired posture and the effect the posture may have upon the anesthesia. An even more important consideration is the effect posture may have upon the patient's vital functions. An example of the latter is the use of extreme Trendelenburg position in the obese patient or in one suffering from advanced circulatory disease. Improper posture may seriously affect the patient's vital functions. Trendelenburg position, for example, may seriously hinder the patient's respiration. Tidal exchange may be markedly lessened, causing not only anoxia, but also decreased circulatory efficiency.

Site of Operation.—The site of the operation often has considerable influence upon the selection of the anesthetic agent and the method by which it is employed. Operative procedures about the head and neck may be greatly facilitated by the absence of obstructive apparatus. In this type of surgery, respiratory obstruction or the inhalation of blood may be prevented by the use of a properly selected type of airway.

In intra-abdominal surgery the anesthetic agent must be one which is capable of furnishing satisfactory muscular relaxation and, hence, surgical exposure. In this instance, therefore, only the anesthetic agents which can produce these results need to be considered.

In ordinary operative procedures upon the extremities, complete muscular relaxation is not required and, thus, the weaker agents may be of value. In conditions where full surgical anesthesia is desirable the stronger agents become necessary.

Extremely exacting are the anesthesia requirements for surgery within the pleural cavity. This is true because of the definite possibility of severe disturbance of the very important physiological functions of respiration, and, indirectly, of circulation.

The Ability and Judgment of the Anesthetist.—In order to evaluate properly the patient's physical state, the anesthetist must be familiar with existing pathologic processes. To prevent further injury to damaged structures he must be familiar with the pharmacologic action of anesthetic drugs. He must correlate the pathologic processes present in the patient with the action of anesthetic agents and methods upon bodily structures and functions. He must not only be skilled in the administration of the anesthetic agent he decides to employ but he must

also be equipped to anticipate and handle the complications peculiar to that agent. It is his responsibility to be acutely conscious of the surgical problem. He should be aware of the effects of the contemplated surgery upon bodily functions, the possible duration of the proposed surgery and the degree of relaxation required. He should be familiar with the skill and ability of the surgeon, and know the conditions under which he can operate most satisfactorily.

It is of the utmost importance that the anesthetist have an honest opinion of his knowledge of anesthetic agents and of his ability to administer properly and safely the agent he may decide to employ.

The above are the criteria that should be used in choosing the proper anesthesia. A close consideration of these criteria is too often lacking. It is unfortunate that in too many clinics and institutions the choice of anesthesia has become one of routine. The most grave mistake is made when the only criterion considered in the choice of anesthesia is the type of surgery which is contemplated. Under this circumstance all patients for like surgery receive the same type of anesthesia. Another instance of insufficient attention to these criteria occurs in the case where all patients receive the same type of anesthesia without regard to the type of surgery to be performed or to what degree the patient's physical state varies from normal.

The anesthetist, by virtue of improved training and increased appreciation of disturbed physiology, is having a widening opportunity to join with the surgeon in the struggle for good results. An important part in this attempt to lower morbidity is the proper choice of anesthesia. Even more important than the proper anesthetic agent, is its skilful administration.

The surgeon assumes an important role in the choice of anesthesia. Just as the anesthetist should be familiar with the surgical problem, should the surgeon be cognizant of the fact that there is an anesthesia problem. The surgeon should not expect to dictate the type of anesthesia to be administered unless he is fully conscious of the effect that that type of anesthesia may have upon the patient and also the ability of his anesthetist to handle that agent safely.

The ultimate welfare of the patient requires that the surgeon and the anesthetist must be willing to aid one another in every possible way. This cooperation should result in team work which will not only make anesthesia and surgery safer and less difficult, but will result in less postoperative morbidity.

The relative influence that each of the criteria may bear upon the choice of anesthesia changes with varying circumstances. The most important of the variables in the choice of anesthesia are those illustrated in Figure 1. The importance of the several variables as they exist in the patient in good physical state is diagrammatically illustrated in this figure. The area each variable occupies in these diagrams shows its relative importance. In a set of circumstances as here illustrated

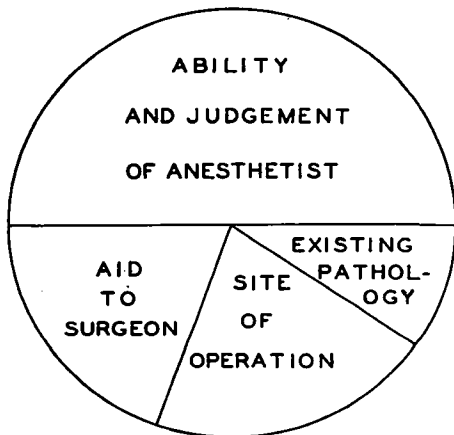


FIG. 1. Relative influence of criteria in a patient in good physical state.

the surgeon is entitled to, and may expect, all the aid and assistance the anesthetist can give him with safety. The anesthetist has at his command several agents and methods with which he can accomplish this objective. Of all the criteria, here, none is more important than the anesthetist's ability and judgment.

Figure 2 will serve to illustrate a patient in poor physical state. The

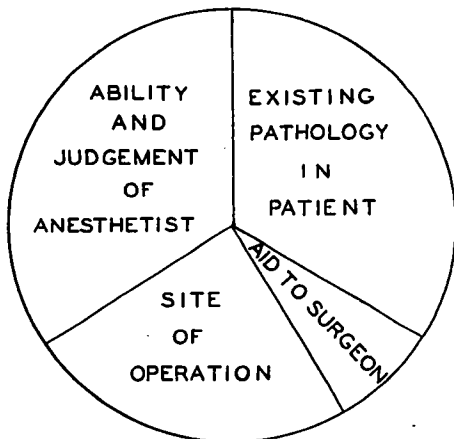


FIG. 2. Relative influence of criteria in a patient in poor physical state.

increasing area occupied by "existing pathology" in the patient should encroach most upon the latitude the anesthetist may have in "aid to the surgeon." The site of the operation is important, but here, too, no area is larger nor any criteria more important than the anesthetist's ability to administer safely the anesthesia which is chosen.

Surgical procedures are often extremely difficult. I fully appreciate the importance of proper exposure and relaxation. Proper exposure and relaxation result most often in direct benefit to the patient. In making surgery easier for the surgeon there results less operative manipulation and a shorter and smoother convalescence. This is to be encouraged in the patient in good physical state. In no circumstance, however, should the state of affairs as pictured in Figure 3 be allowed

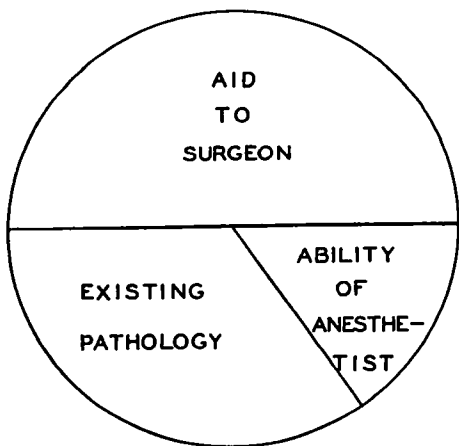


FIG. 3. Relative influence of criteria which should not be allowed to exist.

to take place. Here "aid to the surgeon" occupies the most important role in the choice of anesthesia. In occupying the most important role it limits the area assigned to "existing pathology" or "ability of the anesthetist." This limitation may be more than is justifiable for the patient's welfare.

The conditions that exist when a patient in an extremely poor physical state comes to surgery may be illustrated in Figure 4. Here, the patient is suffering either from advanced damage to body structures or marked physiological disturbance. With increased area devoted to "existing pathology in a patient" the demand for ability and judgment on the part of the anesthetist is no less important. They both detract from the importance that "site of operation" and "aid to the surgeon"

may occupy. This state of affairs markedly limits the number of anesthetic agents and the variety of methods of anesthesia. It is in a series of circumstances such as this that appreciation of the anesthesia problem by the surgeon is extremely important. Under these conditions the surgeon must come to the aid of the anesthetist for the welfare of the patient. His willingness to operate under less ideal conditions than would ordinarily prevail may in the end be to the benefit of the patient. He may find it good judgment to do the operative procedure in stages. A limited field of exploration may be of value. Routine palpation of the gall bladder may best be omitted. His several assistants may be deprived of the opportunity, by manipulation, to agree that there does

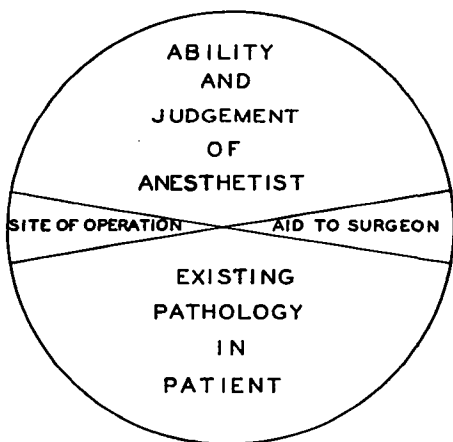


Fig. 4. Relative influence of criteria in a patient in extremely poor physical state.

or does not exist added pathology. A little less deep retraction and fewer intra-abdominal pads will aid the anesthetist and thus the patient. When an explosive anesthetic agent may best serve the patient, the surgeon should consider the substitution of ligature and the scalpel for electrocoagulation and the cautery.

Summary: If anesthesia and surgery are performed for the benefit of the patient, then cooperation between the surgeon and the anesthetist is essential. This team work can be the result only of a mutual appreciation by the anesthetist and surgeon of existing problems.

The criteria to be considered in the choice of anesthesia have been presented. An attempt has been made to compare the varying importance of these criteria under different conditions.

Greater use of and more attention to these criteria are recommended. Their full consideration is the duty of both the anesthetist and the surgeon. An appreciation of each other's problems can not be too strongly encouraged between anesthetist and surgeon.

Of all the criteria considered the most important is "the ability and judgment of the anesthetist." It has been implied that a theoretically improper anesthetic agent, which is administered with skill, will be safer for the patient than one considered ideal but which is administered poorly or even in a mediocre fashion.

252 George St.

MEETINGS OF THE NEW ENGLAND SOCIETY OF ANESTHESIOLOGY

WHITE AUDITORIUM, MASSACHUSETTS GENERAL HOSPITAL,
BOSTON, MASS.

MARCH 11, 1941—8 P.M.

A Surgeon Looks at Avertin. (Ten Years' Experience.)
By George A. Leland, Jr., M.D., Brookline, Mass. (Surgeon) and
Russel F. Sheldon, M.D., Boston, Mass. (Anesthetist.) Discussion
to be opened by Henry K. Beecher, M.D., Boston, Mass.
(Informal dinner at Hotel Kenmore, 6 P.M.)

WHITE AUDITORIUM, MASSACHUSETTS GENERAL HOSPITAL,
BOSTON, MASS.

APRIL 8, 1941—8 P.M.

Short talks on Intravenous Anesthesia and other subjects.
By Ralph M. Tovell, M.D., Director of Anesthesia, Hartford Hos-
pital, Hartford, Conn. and members of his staff.
(Informal dinner at Hotel Kenmore, 6 P.M.)

A subcommittee on anesthesiology of the Surgical Advisory Committee has been formed in the National Research Council, consisting of Drs. Ralph M. Waters, Madison, Wisconsin, Chairman; Lewis S. Booth, New York City; John S. Lundy, Rochester, Minnesota; E. A. Rovenstine, New York City, and Ralph M. Tovell, Hartford, Connecticut. This group is working on the standardization of anesthetic practices and similar functions. All are members of the American Society of Anesthetists, Inc.