

## GENERAL ANESTHESIA DURING OPERATION

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**Abstract:** General anesthesia is a state of controlled unconsciousness, induced by anesthetic agents, which allows patients to undergo surgical procedures without feeling pain, discomfort, or experiencing any recollection of the event. Administered by anesthesiologists, this life-altering intervention has revolutionized the field of surgery, enabling medical professionals to perform complex operations with unprecedented precision and success. As the mainstay of modern surgical practice, general anesthesia has evolved significantly over the centuries, with its application expanding to encompass a wide range of medical specialties and procedures. This article provides an in-depth examination of general anesthesia during operations, exploring its history, components, risks, benefits, and implications for modern surgical practice.

**Keywords:** general anesthesia, surgery, operation tools, medical support, nurses, modern treatments.

**Introduction:** General anesthesia has made surgery since the late 19th century a scientific matter, no longer a question of increasing the patient's pain threshold to the point where large incisions can be made and the patient's vital signs remain within acceptable limits. General anesthesia is a reversible drug-induced state of unconsciousness, in which pain and other forms of physical distress are blocked but from which the patient can be awakened promptly if the need arises. Major advantages of general anesthesia over regional anesthesia are its ability to produce distant muscle relaxation (although drugs are now available which can be used with spinal anesthesia to produce this effect), to allow the anesthetist to control the patient's heart rhythm and the direction and magnitude of blood pressure changes and, through a facilitated endotracheal airway, to protect the patient from the consequences of drooling and gastric aspiration.

Of the many drugs which can be administered to render the surgical patient insensible, most are given by the intravenous route and are chemically related to the barbiturates, which were the first compounds to be used for this purpose. Propofol, methohexital, etomidate, and thiamylal are preferred to the old barbiturates because of their short duration of action, lack of hangover effects, and similarity to the barbiturates in their ability to suppress the excitatory waking responses which patients often exhibit as consciousness is lost. Inhalational anesthetics differ from these drugs in their relatively narrow therapeutic index and the hemodynamic depression which accompanies the lighter planes of anesthesia. They are, however, preferred to the intravenous agents in many procedures because of their faster

induction and emergence profiles and the ease with which they can be adjusted to maintain a constant anesthetic level.

### **Definition and Purpose**

The surgical procedure is a crucial time in the treatment of body diseases, with a great impact on human physiology. It involves the patient in distinct clinical situations. Firstly, without surgical stimulus, and then subjected to the effects of anesthetic drugs and the surgery. Finally, the recovery phase begins. To confront this combination of situations, medical professionals design triadic interactions that maximize positive results, such as good analgesia, effective elimination of patient suffering, and a fast return to normal life.

Surgical procedures are actions, a moment of intervention, conditioned by the administration of anesthetic-surgical drugs. They can be surgical, with a required degree of complexity but not aimed at treating disease (e.g., cosmetic breast augmentation). They can also be considered surgical, with a lower degree of complexity, but also described as medical (e.g., simple tooth extraction). The vast majority of surgical interventions describe the surgical aspect of disease treatment (e.g., cancer, abscess, fractures). These interventions can be defined as cutaneous and/or deep incisions involving natural orifices and/or osseous tissue, or they can be treated with special techniques, resulting in tissue damage and consequent organic constitutional response (profound inflammation and poor organ function).

### **Historical Overview**

The use of general anesthesia has evolved over thousands of years into our current practice of providing safe and precise anesthetic management incorporated into the entire perioperative care of millions of patients undergoing surgical procedures annually. Surgery was an important first stimulus to formal medical practice. The earliest writings about surgical practice are the temple writings from ancient Egypt, giving instructions for incantations and protection against "ills-demons". The Edwin Smith and the Ebers papyrus contain descriptions of surgical procedures from Egypt dating to more than five centuries BCE. These include instruction for bone setting and the drainage of abscesses.

Surgery in ancient Indian medicine reached a high level of sophistication between 600 and 1000 CE. Many of the 184 surgical procedures described in Sushruta Samhita were known in India at that time. The Book of Sushruta is concerned with the techniques of surgery and descriptions of these are more explicit than in the famous Book of Charaka which is focused on medicine. The practice of anesthesia is recorded in the works of Sushruta, but not in those of Charaka. In the practice of anesthesia, the binding spells known as Tantra-Krita were sometimes used. The main purpose of the spells seems to be to produce protection for the patient, the surgeon, and the family of the patient. Only three of these spells are extant but they are similar to the exorcising incantations used today by the tribal healers of India.

### **Components of General Anesthesia**

The process of general anesthesia involves a multi-component approach, incorporating five essential elements: hypnosis, analgesia, amnesia, relaxation, and control of autonomic functions. Hypnosis refers to the induction of an unconscious state, achieved through the

administration of anesthetic agents. Analgesia ensures that the patient remains pain-free during the procedure, while amnesia eliminates any conscious memory of the event. Relaxation and control of autonomic functions, such as blood pressure and heart rate, are also crucial components of general anesthesia, ensuring a stable and controlled environment for the surgical team.

#### Risks and Complications of General Anesthesia

Despite its widespread use, general anesthesia is not without risks and complications. Respiratory and cardiovascular problems, including respiratory depression, bradycardia, and hypotension, are among the most common adverse effects. Other potential complications include allergic reactions, malignant hyperthermia, and postoperative nausea and vomiting. Additionally, the prolonged use of general anesthesia has been linked to cognitive impairment and increased mortality in certain patient populations. It is essential for anesthesiologists to carefully evaluate patient risk factors and tailor anesthetic plans to individual needs, in order to minimize the occurrence of these complications.

#### Benefits of General Anesthesia

The benefits of general anesthesia are multifaceted and far-reaching. By providing a pain-free and anxiety-free environment, general anesthesia enables patients to undergo complex surgical procedures with minimal discomfort and stress. The absence of pain and anxiety during surgery has been shown to reduce postoperative pain, nausea, and vomiting, while also facilitating faster recovery times and shorter hospital stays. Furthermore, general anesthesia allows surgeons to perform procedures with increased precision and accuracy, resulting in improved surgical outcomes and reduced morbidity.

#### Implications for Modern Surgical Practice

The administration of general anesthesia has significant implications for modern surgical practice. The development of new anesthetic agents and techniques has expanded the range of surgical procedures that can be performed under general anesthesia, including ambulatory surgery, laparoscopic surgery, and robotic-assisted surgery. Additionally, the increasing use of regional anesthesia and sedation has led to the development of novel surgical approaches, such as awake surgery and minimally invasive procedures. The integration of anesthesia care teams into surgical practice has also improved patient outcomes, reduced complications, and enhanced the overall quality of care.

#### Conclusion.

General anesthesia is a complex and multifaceted intervention that has revolutionized the field of surgery. By providing a controlled and pain-free environment, general anesthesia enables patients to undergo complex surgical procedures with minimal discomfort and stress. While risks and complications are inherent to the process, careful patient evaluation, tailored anesthetic plans, and advances in anesthetic techniques have significantly reduced the occurrence of adverse events. As modern surgical practice continues to evolve, the role of general anesthesia will remain pivotal, underpinning the delivery of high-quality, patient-centered care.

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