

Anesthesia Art-I

Is anesthesia an **Art** or a **Science**?

Types of anesthesia

By: Dr. Azad J. Ali

Senior anesthesiologist

Teaching Hospital

Sulaimaniyah- Kurdistan Region-Iraq

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Is anesthesia an Art or a Science?

The practice of anesthesia is very much a mixture of science and art.

It evolved well beyond rendering patients insensible to pain during surgery or obstetric delivery.

Some historical facts

- **Oliver Wendell Holmes** in 1846 was 1st to use the term (**Anesthesia**) to denote analgesia ,amnesia and narcosis.
- On October 16th 1846 **William T.G. Morton** conducted the 1st publicized demonstration of General Anesthesia for surgical operation using Ether.
- The application of modern local anesthetic is credited to **Carl Koller**, at the same time a house officer in ophthalmology demonstrated topical anesthesia of the eye with Cocaine in 1884.

Some historical facts

- Introduction of **Curare** greatly facilitated tracheal intubation and muscle relaxation during surgery thus requirement for deep levels of inhalational anesthetic became less.
- **John Snow** who is often considered the father of was the 1st to scientifically investigate Ether and the physiology of general anesthesia.
- The Greek philosopher **Dioscorides 1st** used the term '**Anesthesia**' to describe **narcosis**, '**defect in sensation**' later and '**privation of the senses**'.

Processes during anesthetic care

- **The Job of the anesthesiologist is not only to make the patient unconscious and let the surgeon to operate.**
- **His duty is to take care of all the systems of the human body(e.g. Cardiovascular system , Respiratory system, Nervous system, Endocrine system, Urinary system etc.) and make the operation successful.**
- **This mission involves (3 stages):**

What are the 3 stages during the process of anesthesia?

- 1. Preoperative stage:** assessment and preparation of the patient for the planned surgery.
- 2. Intra-operative stage :** care during anesthesia to avoid or treat possible complications.
- 3. Post operative stage:**
 - a) recovery** from anesthesia.
 - b) postoperative analgesia.**
 - c) Care** to avoid or treat possible complications.

1-Preoperative assessment and preparation

- **Anesthetic care starts from pre-anesthetic check-up (history, physical examination and investigation required for each patient and the planned surgery.**
- **It is the process of collecting detailed information of the patient, which is a skillful job.**
- **If the patient lacks cooperation or tries to rush through , it may result in incomplete history and physical examination, compromising anesthetic care.**

1-Preoperative assessment and preparation

- **The anesthesiologist must be skilled to motivate the patient for full cooperation, e.g. in pediatric patient the anesthesiologist must play the role of an **artist** who can make children free from fear of separation from parents.**

2-Intra-operative care during anesthesia

- **This includes 2 steps:**
 - 1) Induction of anesthesia.**
 - 2) Maintenance of anesthesia.**
- **Taking care of all systems of unconscious patient.**
- **In spite of modern sophisticated monitoring equipment , care for anesthetized patient requires high level of skill and knowledge.**

3-Post operative care

- **Recovery from anesthesia is another vital stage of anesthetic care.**
- **There is no rule or law in the recovery from anesthesia ,each individual respond differently.**
- **The anesthesiologist must be skilled to identify and treat possible complications accordingly.**
- **Post operative pain relief must be provided by **pain team** , which is mainly supervised by the anesthesiologist.**

Is anesthesia practice and care independent?

- **The practice of anesthesia requires coordination with other specialties , including :**
 - **Surgery and its sub-specialties.**
 - **Internal medicine.**
 - **Pediatrics.**
 - **Obstetrics.**
 - **Clinical pharmacology.**
 - **Others .**

What is the relation between the anesthesiologist and the patient?

- **In medical practice both the service provider and the service seeker are human being.**
- **They must understand and rely on each other to solve the existing problem.**
- **The difference is: A dancer can do mistake while performing dance , but in medicine even a minor mistake can cause harm to the patient.**
- **Therefore the medical practitioner must be a perfect artist.**

Types of anesthesia

There are four main types of anesthesia used during surgery and other procedures:

1. **General anesthesia.**
2. **Regional anesthesia.**
3. **Sedation** (sometimes called "monitored anesthesia care").
4. **Local anesthesia.**

Sometimes patients may choose which type of anesthesia will be used.

In the majority of cases the **anesthesiologist** will discuss with the **patient** and the **surgeon** which type is the safest and most suitable for the patient and the planned surgery.

1-General anesthesia

- Is what people most often think of when they hear the word "**anesthesia**" that is during general anesthesia, you are unconscious and have no awareness or sensations.
- Many medications and techniques are used including :
 - 1) **Inhalational anesthetic agents**: gases and vapors given through a breathing **mask** or a **tube**.
 - 2) **Intravenous anesthetic agents** :are given through the IV route to induce sleep(**hypnotics or induction agents**), relax muscles (**muscle relaxants**), and treat pain (**analgesic agents**).

These 2 are used alone or mixed together in many ways.

2-Regional anesthesia

- **Makes an area of the body numb to prevent the patient from feeling pain.**
- **It can completely block sensation to the area of the body that requires surgery.**
- **The anesthesiologist injects local anesthetic agent (numbing medication) near the cluster of nerves that provides sensation to that area.**

2-Regional anesthesia

- 1) Spinal and epidural anesthesia are the two very common types of regional anesthesia.**
- 2) IVRA (intravenous regional anesthesia) is a third type. Numbing a region like a forearm or a leg by injecting the local anesthetic agent into a peripheral vein of an isolated upper or lower limb from the rest of the body's circulation.**
- 3) Nerve block like brachial plexus block, intercostal nerves, femoral or sciatic nerve block, wrist or ankle blocks, and many other nerve blocks.**

2-Regional anesthesia

- **Regional anesthesia for surgery doesn't mean that you have to be completely awake.**
- **Many patients prefer to receive sedation so that they can relax and doze off during the procedure.**
- **Sometimes regional anesthesia is used in combination with general anesthesia for major surgery on the chest or abdomen.**
- **This technique has the advantage that patients don't need as much opioid pain medication after surgery.**

3-Sedation

- Also known as "**monitored anesthesia care**. Medications are given, usually through an IV, to make the patient feel drowsy and relaxed.
- Different levels of sedation are possible, depending on the type of procedure and the patient's preference:
 - 1) **Mild sedation**: often used for eye surgery, a patient is awake and can respond to questions or instructions.
 - 2) **Moderate sedation**: the patient may doze off but awakens easily.
 - 3) **Deep sedation**: is nearly the same as general anesthesia, meaning that the patient is deeply asleep though able to breathe without assistance, used for procedures such as upper endoscopy or colonoscopy.

4-Local anesthesia

- **A local anesthetic agent is injected or infiltrated through a needle or applied as a cream to numb a small area.**
- **Local anesthesia alone may provide enough pain relief for limited procedures such as suturing of superficial wound or excision of small skin or a mucus membrane lesions.**
- **It is often used along with sedation during minor outpatient surgery.**
- **At the end of many operations, the surgeon may inject local anesthesia to provide additional pain relief during recovery.**