Republic of Iraq

Ministry of Higher Education and Scientific Research

University of Basrah

College of Veterinary Medicine

Department of Surgery and Obstetrics

History of Anesthesia

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What was done to a patient before an operation ?

Before discovery of anesthetics

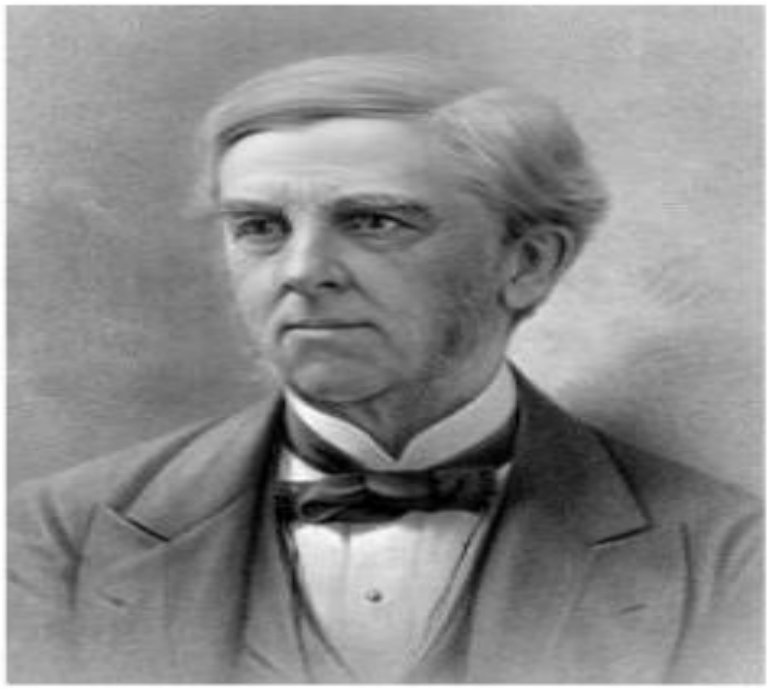
Before 1846

- Few drugs/plant product used to remove pain-
  - Alcohol
  - Opium
  - Hyoscine
  - Cannabis
  - Cocaine
- Other method /non-drugs method used to remove pain-
  - Cold
  - Concussion
  - Carotid compression
  - Nerve compression
  - Hypnosis

1846

- 1846 - Oliver **Wendell Holmes** coined the term Anesthesia.

- It originates from the Greek word an- "without" and "aisthesis" refers to the inhibition of sensation.



Oliver Wendell Holmes
(1809–1894)

John Snow : 1st Anesthesiologist

- 1st anesthetist: Used ether and Chloroform as surgical anesthetics.
- He designed an apparatus to safe administration of ether anesthesia to the patients and also designed a mask to administer chloroform anesthesia.
- Chloroform anesthesia became famous, when He administered chloroform to Queen Victoria when she gave birth to the child.

John Snow

1813-1858

Ether Anaesthesia

1540 - Synthesized and named "sweet oil of vitriol" by **Valerius Cordus**. Frobenius renamed it "ether".

1818- Anaesthetic effect of ether was discovered by **C W Long**.

1846-- Ether anaesthesia was first publicly demonstrated in by **William T G Morton** in **"Ether"** at Massachusetts General Hospital (Boston, USA).

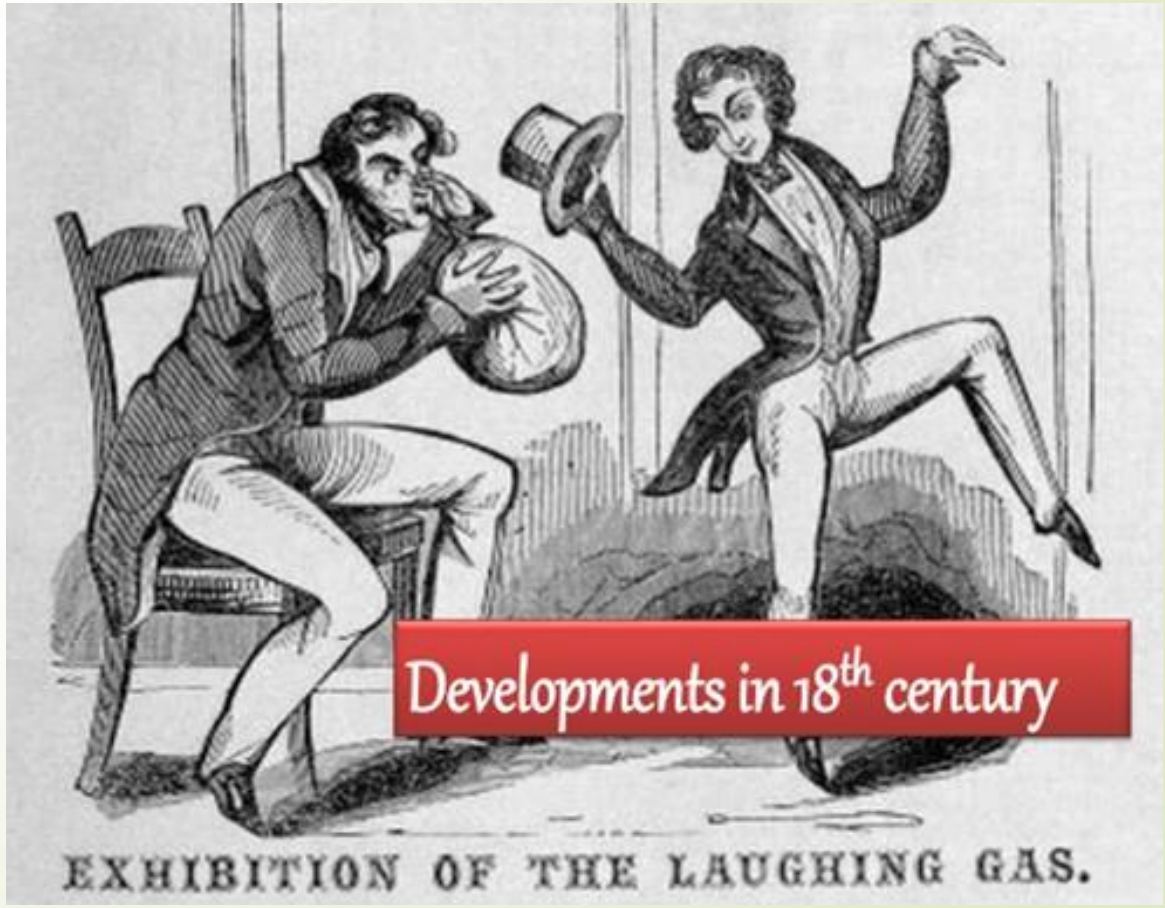
William T G Morton

The Ether Dome, Boston, Massachusetts

Nitrous oxide

1776 - first anesthetic, nitrous oxide gas (laughing gas) was discovered by **Priestly**.

Priestly



Nitrous oxide Anesthesia

- 1844- Nitrous oxide was first used as an anesthetic by a dentist **Horace Wells** (Hartford, USA) for removal of a tooth in a human.

- **Sir Humphry Davy** (British chemist) suggested its use in painless surgery.

Sir Humphry Davy

Chloroform Anaesthesia

- 1847- Chloroform anaesthesia was introduced by James Young Simpson (Scottish obstetrician) and became very popular due to its pleasant odour.
- Despite of the high toxicity and mortality rate the use of chloroform in surgery remained for nearly 100 years.

James Young Simpson

- **1872**--Chloral hydrate was the **first intravenous** anaesthetic.
- **1903**--Barbiturates were introduced.
- 1929--Cyclopropane was discovered and remained in extensive use for next 30 years.
- 1935--Thiopentone was introduced as general anaesthetic by Lundi.
- 1956--introduction of halothane, a non-flammable anaesthetic, revolutionized the inhalation anaesthesia.

Anaesthesia in 21st Century

Terms in Veterinary Anesthesia

- **Anesthesiology**: It is the name giving to whole art and science relating to the production of insensibility.
- **Anesthesia**: it is loss of sensation in a part or in the whole body, generally induced by the administration of a drug that depresses nervous tissue activity.

Classification of anesthesia

- General anesthesia
- Local anesthesia
- Regional anesthesia

General anesthesia has many purposes including:

- Pain relief (analgesia)
- Blocking memory of the patient (**amnesia**)
- Producing unconsciousness
- Inhibiting normal body reflexes to make surgery safe and easier to perform
- Relaxing the muscles of the body

Indications of General Anesthesia

- To perform surgical operation or procedure.
- For radiographic procedure.
- For obstetrical procedure.
- For special diagnostic procedure, e.g. in case of endoscopy.
- For cast application.
- Euthanasia by giving overdose of anesthesia.
- To control the convulsion, e.g. in case of Epilepsy and tetanus.

Triad of General Anesthesia

1. **Unconsciousness effect,**
2. **Analgesic effect, and**
3. **Muscle Relaxant effect.**

Factors Effecting General Anesthesia

- Age of animal: the young animal need large dose of anesthesia / kg B.W., due to high metabolic rate, very young and old animals are more sensitive to anesthesia in comparison to an adult animal.
- Sex of animal: some times males need less anesthesia than females, in the same time the pregnant females are more susceptible to the general anesthesia drugs due to high metabolic rate.

CONT.....

Species of the animal: In horses it is necessary to provide adequate restraint. In ruminants the use of endotracheal tube and stomach tube is very necessary in general anesthetic procedure mainly in inhalation anesthesia to prevent regurgitation which lead to aspiration pneumonia. Morphine is contraindicated in cat due to excitatory effect, but in dogs it is a drug of choice for general anesthesia, and in horse it has a depressant and excitatory effect. final effects depend on the dose, rout, and rate of administration.

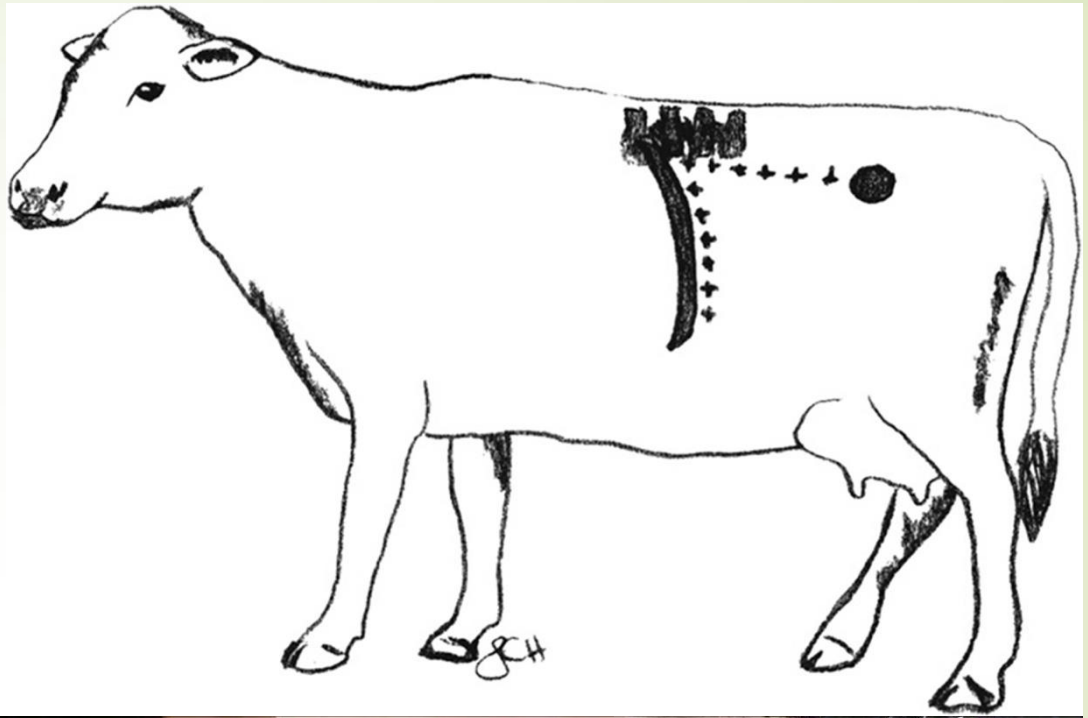
CONT.....

Physical condition of the animal: Animal with large quantity of fat need less anesthesia / kg B.W. also the same thing in toxic and emaciated animals. Fear and excited animal required more anesthesia dose and sometime this will lead to state of over dose. Liver, kidney and lung diseases increase the anesthesia risk, example: intravenous general anesthesia agent should not be giving to animal suffering from liver and kidney diseases.

Terms in Veterinary Anesthesia

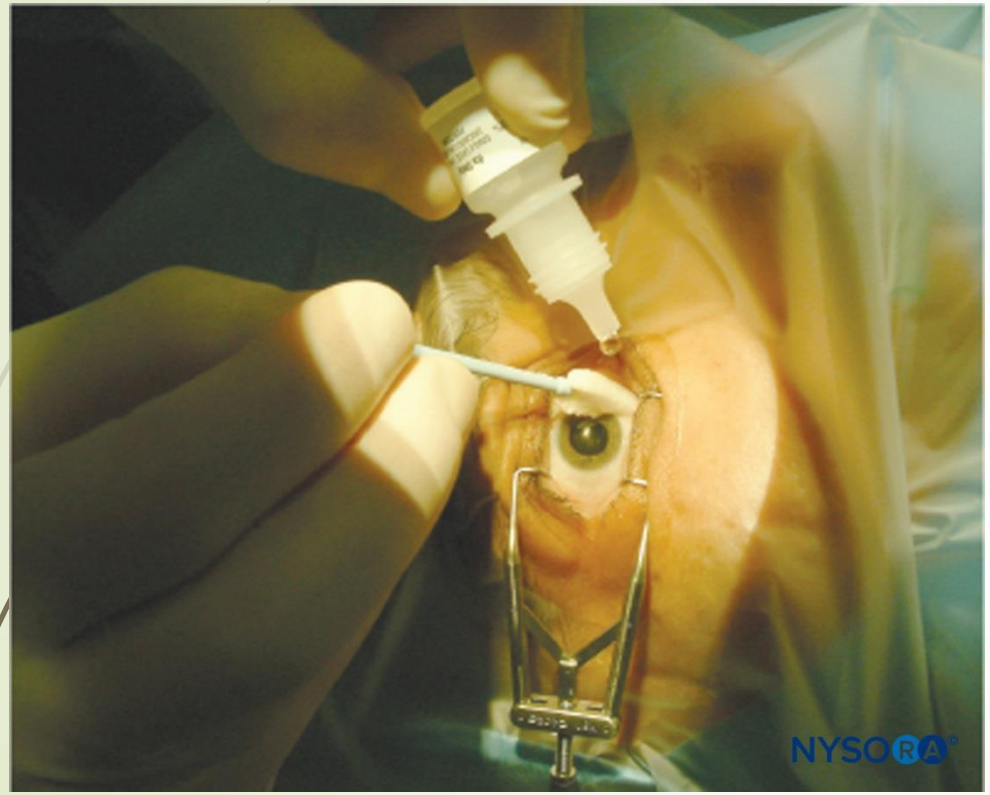
- **General anesthesia:** Is a state of controlled unconsciousness, This occur by treatment makes you unconscious and insensitive to pain or other stimuli by depress CNS. General anesthesia is used for more invasive surgical procedures, or procedures of the head, chest, or abdomen.

- **Local anesthesia:** A temporary loss of feeling in one small area of the body caused by special drugs called anesthetic agents. The animal stay awake but has no feeling in the area of the body treated with the anesthetic agent. Local anesthetics may be injected or put (drop, spray) on the skin or eye to lessen pain during medical or surgical



Cont……..

- Local anesthesia (analgesia): giving to the animals by the following ways: Topical (surface) application of local anesthesia. Intra-articular or synovial block. Intra and sub dermal infiltration. Line block. Ring block. Field block.



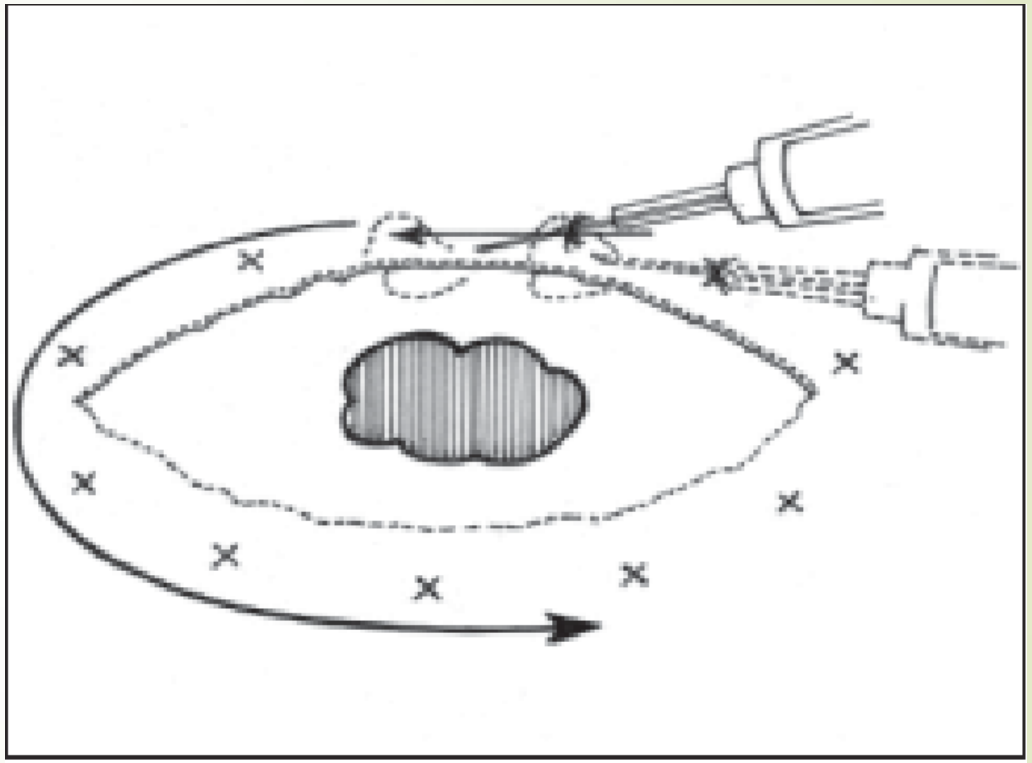
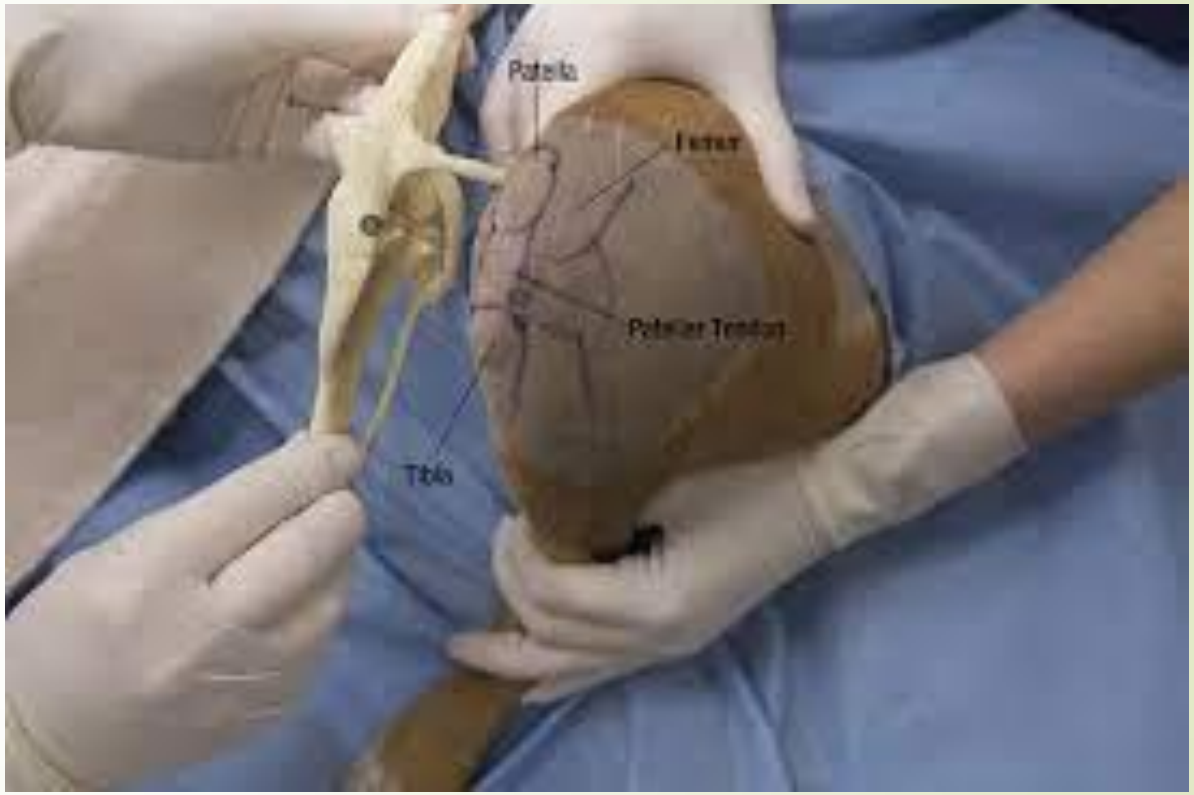
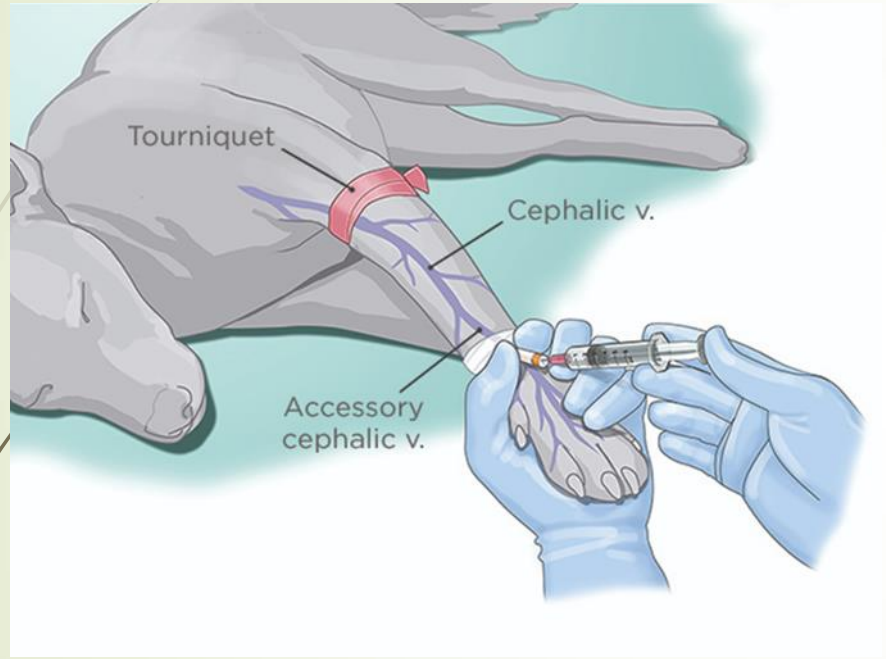


Figure 1: Ring block


Patella
Tibia

Cont……terms

- **Regional anesthesia:** Regional anesthesia blocks pain in a larger part of body, such as a limb or everything below chest. You are can be conscious during the procedure, or have sedation in addition to the regional anesthetic. Examples include an epidural to ease the pain of childbirth or during a cesarean section (C-section), a spinal for hip or knee surgery, or an arm block for hand surgery.


Tourniquet
Cephalic v.
Accessory
cephalic v.

Cont……terms

- Surgical anesthesia: it is a state of unconsciousness a companied with muscle relaxation to such a degree the surgery can be performed without pain.

- Basal anesthesia: is a light level of general anesthesia usually produced by pre-anesthetic agents. It serves as a basis for deeper anesthesia on administration of other agents.

Cont…….Terms

- Balance anesthesia: it is a system use in anesthesia practice by combination more than one drug or technique to reach the relaxation and analgesia (Sevoflurane, Remifentanil….ect).

- Dissociative anesthesia: are a class of psychedelic drug. This class of drug is characterized by distorted sensory perceptions and feelings of disconnection or detachment from the environment and self (Ketamine, PCP).

Cont……Terms

- **Analgesia**: it is absence of pain (to relive pain), pain killer (fentanyl).
- **Narcosis**: it is a state of deep sleep (unconsciousness)(Morphine)and a companied with a varying degree of analgesia (Chloral Hydrate).
- **Hypnosis**: it is a state like sleep which may be regarded as physiological condition in which the animal can be easily a wakened by different types of stimuli (Flurazepam).

Cont.....Terms

- Tranquilization: it is a state of behavioral change in which the animal is relaxed and unconcerned to the surrounding with mild degree of analgesia without incoordination diazepam (Valium).

- **Sedation**: it is a state of calming nervous vicious and exited animal due to mild depression to CNS a companied with analgesia and incoordination (Barbiturate).

Who is at risk for anesthesia complications?

- Certain factors make it riskier to receive anesthesia, including:
- Advanced age.
- Diabetes or kidney disease.
- Family history of malignant hyperthermia (anesthesia allergy).
- Heart disease, high blood pressure (hypertension) or strokes.
- Lung disease, such as asthma or chronic obstructive pulmonary disease.
- Obesity (high body mass index or BMI).
- Seizures or neurological disorders.
- Sleep apnea.
- Smoking.

Thank You