

## Surgery and Anesthesia

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### Abstract

**What is Surgery:** The branch of medical practice that treats injuries, diseases, and deformities by the physical removal, repair, or readjustment of organs and tissues, often involving cutting into the body.

**What is Anesthesia:** Anesthesia is a state of controlled, temporary loss of sensation or awareness that is induced for medical purposes. It may include some or all of analgesia, paralysis, amnesia, and unconsciousness. A patient under the effects of anesthetic drugs is referred to as being anesthetized. It prevents your brain from processing pain and from remembering what happened during your surgery. A specially trained doctor, called an anesthesiologist, gives you general anesthesia and cares for you before, during, and after your surgery.

**Preoxygenation:** To increase oxygen reserve  
**Induction and intubation:** mostly intravenous route Benzodiazepine (eg. Midazolam) for amnesia, opioid (eg. fentanyl 2mcg/kg) For analgesia, Propofol 2mg/kg Makes patient unconscious. Relaxant (eg. Rocuronium) for muscle relaxation both for intubation and surgical procedure. While performing Surgery of cleft palate and lip Pre-medication use Sedative may precipitate airway obstruction and should be avoided. Atropine is an effective drying agent and is advisable when difficult intubation is anticipated or anesthesia planned with ether or ketamine (20mg/kg) intramuscular 30 minutes preoperatively or 10-20mg/kg intravenously at induction. Where as paracetamol can given orally as a pre-medication (20mg/kg) prescribe to infant after 6 month .to about post operative complications. Despite local anesthesia : Tetracaine (1-2mg/kg) are sufficient where as for more painful cleft palate. Maintenance of anesthesia Usually with inhalation of anesthetic drug: isoflurane Or sevoflurane with air/Oxygen (FIO<sub>2</sub>>0.3) Iv. Fluid Management ( mostly Ringer Lactate) Monitoring: Pulse, Bp, Respiration, ECG, Oxymetry, Temperature, Capnography.

**Reversal & Extubation.** Minimum alveolar Concentration (MAC): Is the concentration of anesthetic drug, in alveoli, at 1 atmosphere, that is required to produce Immobility in 50% Of Patients Subjected to a surgical Incision. Does N<sub>2</sub>O cannot provide Adequate anesthesia. Intravenous anesthetic drug Propofol 1% (10mg/ml) 2-2.5mg/kg has rapid onset And short duration Pain on injection, fall in Bp, depress respiration Thiopentone 2.5%(25mg/ml) Ultra short acting barbiturates, Dose 4-5mg/kg 1-1.5mg/kg has anticonvulsant effect. Ketamine: Produce dissociative Anesthesia . State of unconsciousness with good analgesia but Wake appearance. Dose: 1-2 mg/kg.Iv, 3-5mg/kg IM Rise in heart rate , Bp,, muscle tone, Salivation Airway Reflexes usually intact. Mechanism of action of General anesthesia The anaesthetics inhibit or block excitatory ligand-gated ion channels and enhance the sensitivity of inhibitory ion channels such as  $\gamma$ -aminobutyric acid A (GABA<sub>A</sub>) receptor. Blockade of the ion channel in the N-methyl-d-aspartate (NMDA) type of glutamate receptor by ketamine Local Anesthesia MoA: LA. reversibly inhibit nerve transmission by binding voltage-gated sodium channels (Nav) in the nerve plasma membrane. Nav channels are integral membrane proteins, anchored in the plasma membrane.

**Anesthesia Awareness:** Awareness under anesthesia, also referred to as intraoperative awareness or accidental awareness during general anesthesia (AAGA), is a rare complication of general anesthesia where patients regain varying levels of consciousness during their surgical procedures. While anesthesia awareness is possible without resulting in any long-term memory, the more clinically significant complication is awareness with explicit recall, where patients can remember the events related to their surgery. only occurs at an incidence rate of 0.1-0.2%. Patients report a variety of experiences ranging from vague, dreamlike states to being fully awake, immobilized, and in pain from the surgery.

### Biography

Sudristi Sharma is currently working as Medical Student in Chitwan Medical college, Bharatpur Chitwan. Skilled in Good Laboratory Practice (GLP), Analytical Skills, Medical Social

work, and Dental Care. She has a strong operations professional with a Bachelor of Dental Surgery.