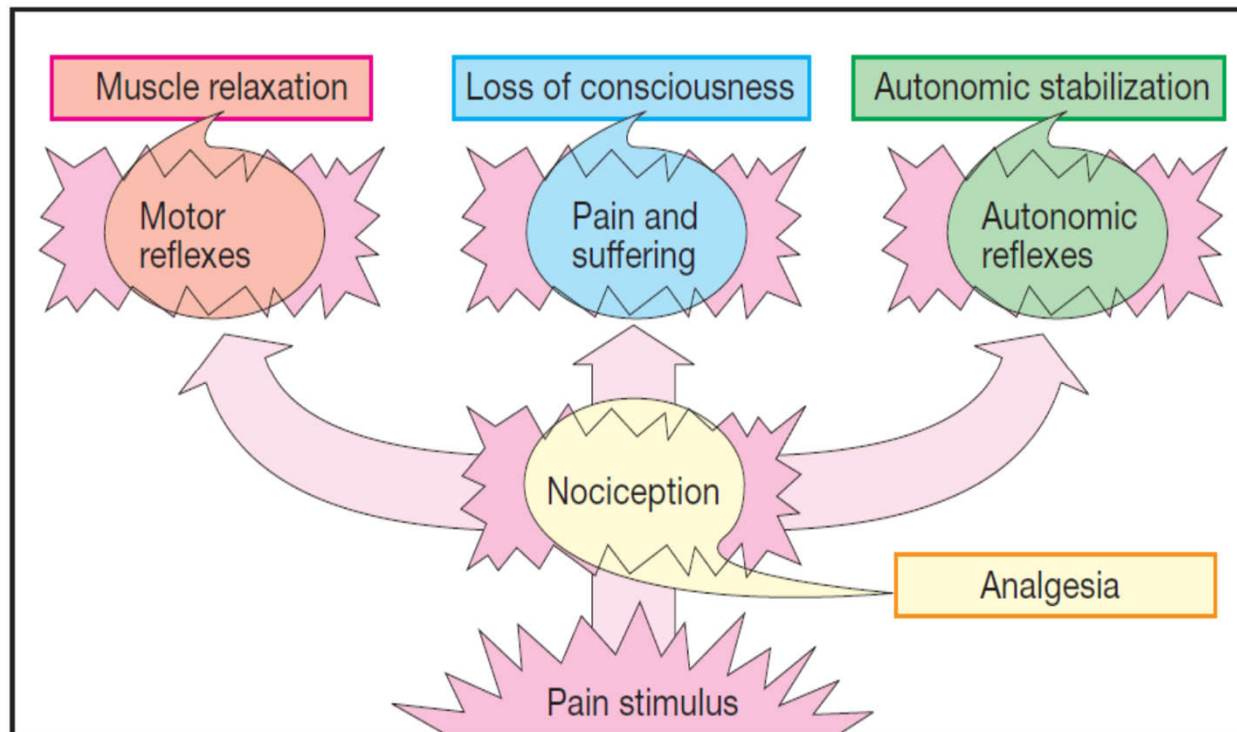


Pre-anesthetic Medications



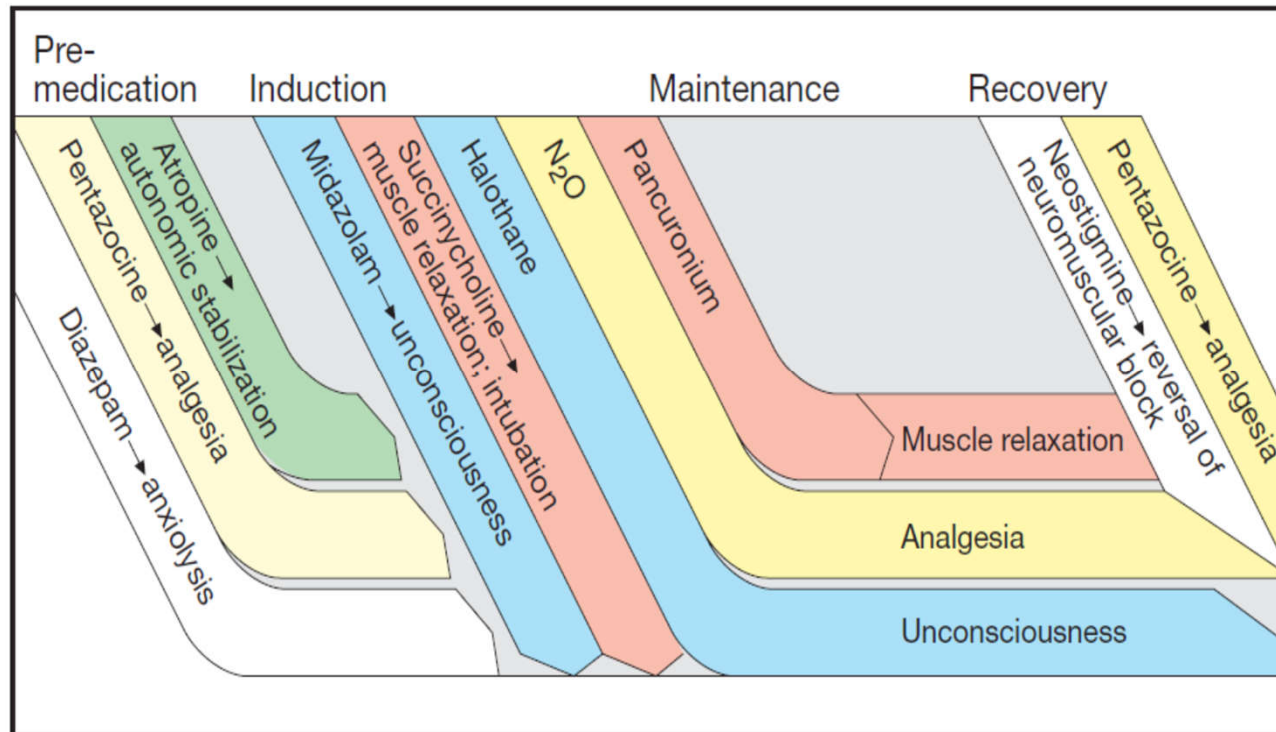
General Anesthesia



Goals of surgical anesthesia

1. Loss of pain sensation
2. Loss of consciousness
3. SKM relaxation
4. Autonomic stabilization

Balanced anesthesia



Regimen for balanced anesthesia

1. Pre-anesthetic medication (anxiolytics, analgesics, anti-muscarinics),
2. Induction
3. Maintenance
4. Recovery

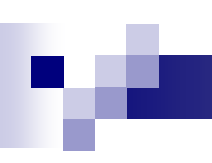
Pre-anesthetic medications

Primary Goals:

- Anxiety relief without excessive sedation.
- Amnesia during preoperative period while retaining cooperation.
- Relief of preoperative pain.

Secondary Goals:

- Reduction in the requirement for inhalational agents.
- Reduction in side effects associated with some inhalational agents such as salivation, bradycardia, post-anesthetic vomiting.
- Reduction in acidity and volume of gastric contents.
- Reduction of stress in preoperative period.

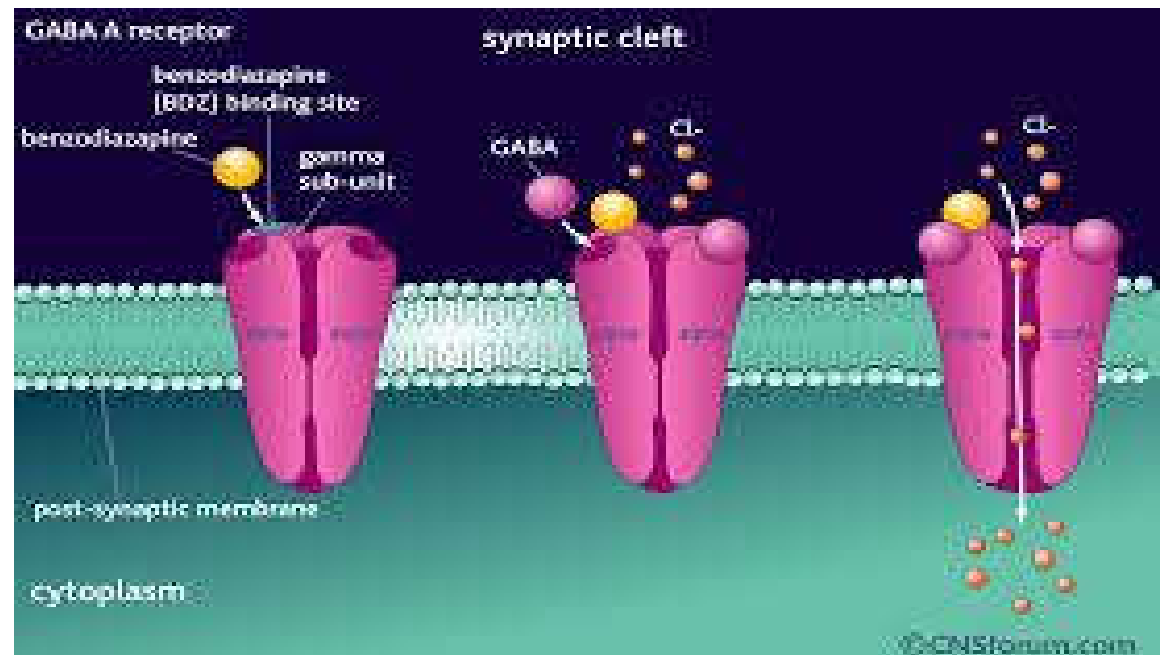


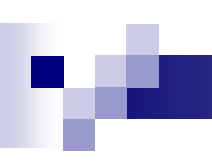
(1) Sedatives and hypnotics:

- Benzodiazepines are frequently used as preanesthetics because of the following properties:
 - Anxiolysis.
 - Sedation.
 - Relatively little respiratory and cardiac depression.
 - Amnesia: a form of memory loss.
 - Decrease in catecholamine release in surgery when administered in combination with opioids.e.g. Midazolam(PO,IM,IV,IN,PR),Lorazepam.

Mode of action

Benzodiazepines produce their effects by the enhancement of GABA-mediated inhibitory transmission at GABA-A receptors, which are widely distributed at postsynaptic sites in the CNS.



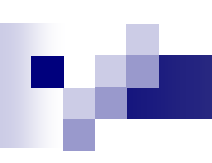


Disadvantages

All benzodiazepines impair judgment and increase reaction time, and even short-acting drugs impair psychomotor performance and may produce hangover effects on the day after their administration.

Ambulant patients should not drive, work at heights or operate dangerous machinery for at least 24 hours after their administration.

May depress ventilation in elderly patients with poor pulmonary function, drowsiness, disorientation and unsteadiness can result in slurred speech, falls and fractures, poor memory and acute confusional states.



(2) Anticholinergics:

1. Reduction in the amount of bronchial and salivary secretions.
2. Diminution in the cardiac responses to inhalational anaesthetics with significant vagomimetic activity.
3. Decrease in reflex vagal stimulation e.g. during endotracheal intubation and visceral traction.

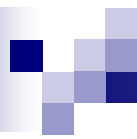


When effects mediated through the cardiac vagus may be enhanced, this may occur with

- (1) Treatment with adrenoceptor antagonists or cardiac glycosides.
- (2) Ophthalmic surgery, in order to prevent oculocardiac reflexes.
- (3) when techniques involving intermittent succinyl choline are used.

For reducing secretion (glycopyrrolate > scopolamine > atropine)

For preventing reflex bradycardia (atropine > scopolamine > glycopyrrolate)

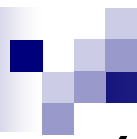


(3)Opioid analgesics and NSAIDs:

Opioids e.g. morphine, meperidine and fentanyl are frequently used as preanesthetics because of the following properties:

- Pre&postoperative pain relief.
- Anxiolysis, Sedation, Euphoria.
- Reduction in the amount of general anesthesia required (about 10% - 20 % reduction).

- 
- The popularity of NSAIDs as anaesthetic adjuvants has led to their frequent use as premedicant drugs, particularly for minor surgery.
 - Diclofenac and ketorolac are commonly used for this purpose. Both drugs can be given orally and by intramuscular and intravenous injection, and diclofenac can also be administered as suppositories.
 - Paracetamol suspension and ibuprofen are also commonly used for oral premedication in children.



(4)Antiemetic drugs

Physiological and pharmacological factors

Nausea & vomiting can be induced by many physiological and pathological factors:

Pregnancy, Acute pain, Raised intracranial pressure,
Inflammation or irritation of the gastrointestinal tract,
inhalational anesthetics, Many drugs and ingested
toxins.



.Dopamine D2-receptor antagonists

Metoclopramide

Serotonin receptor antagonists

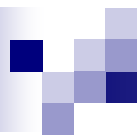
Ondansetron

.Histamine H1-receptor antagonists

Diphenhydramine antiemetic and mild hypnotic effects

.Corticosteroids

Dexamethasone



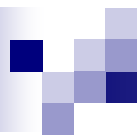
Gastrokinetic agents:

Gastrokinetic drugs ↑ upper gastrointestinal motility, ↑ gastroesophageal sphincter tone, relax the pylorus and duodenum as well as they ↑ GER.

To ↓ the risk of aspiration pneumonitis especially in high-risk patients:

Acute pain; "full stomach" emergency surgery.

Patient with hiatus hernia or esophageal reflux



METOCLOPRAMIDE

Metoclopramide acts peripherally as a cholinomimetic and centrally in the chemoreceptor trigger zone as a dopamine antagonist.

Metoclopramide increases lower esophageal sphincter tone, speeds gastric emptying, and lowers gastric fluid volume.

Metoclopramide does not affect the secretion of gastric acid or the pH of gastric fluid.

Antimuscarinic drugs (eg, atropine, glycopyrrolate) block the GI effects of metoclopramide.



(5) H₂-Receptor Antagonists

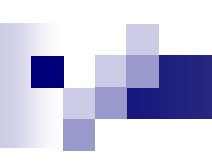
Mechanism of Action

H₂-Receptor antagonists include famotidine, nizatidine, and ranitidine. These agents competitively inhibit histamine binding to H₂-receptors, thereby reducing gastric acid output and raising gastric pH.



(6) Proton Pump Inhibitors

Inhibits parietal cell membrane enzyme H/K
ATPase final step in acid production e.g.
omeprazol, pantoprazol, esmoprazol(oral&IV)



(7)ANTACIDS

Antacids neutralize the acidity of gastric fluid by providing a base (usually hydroxide, carbonate, bicarbonate, citrate, or trisilicate) that reacts with hydrogen ions to form water.

Antacids provide protection against the harmful effects of aspiration pneumonia by raising the pH of gastric contents.

Unlike H₂-receptor antagonists, antacids have an immediate effect.



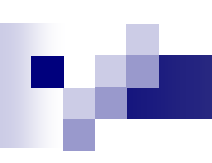
Disadvantages:

Increase intragastric volume.

Aspiration of particulate antacids (aluminum or magnesium hydroxide) produces abnormalities in lung function comparable to those that occur following acid aspiration.

Nonparticulate antacids (sodium citrate or sodium bicarbonate) are much less damaging to lung alveoli if aspirated.

Timing is critical, as nonparticulate antacids lose their effectiveness 30–60 min after ingestion.



(7) Alpha 2 Agonist(clonidine, dexmedetomidine)

- Inhibits catecholamine release in both central and peripheral neurons, and there is a decrease in the anaesthetic requirement for both intravenous and intranasal agents.
- The sympathoadrenal responses associated with anaesthesia and surgery are also attenuated.
- Enhance the effects of opioid analgesics and local anaesthetic agents.
- Used extradurally and intrathecally for postoperative and chronic pain.



Thank you