

GENERAL ANAESTHETICS (Loss of consciousness)

- Overall the body.
- Reversible loss of sensation & consciousness
- Analgesia and amnesia
(reducing the pain)
- Immobility & muscle relaxation

Stages:- (Guedel)

- ① stage of Analgesia
- ② stage of Delirium
- ③ stage of Surgical Anaesthesia
- ④ stage of Medullary Paralysis.

① Stage of Analgesia

- ~~Beginning of~~ ^{to} loss of conscious
- Patient remains conscious.
- Amnesia develops

② Stage of Delirium (No surgical operation should be done) (Preanaesthetic agent is given)

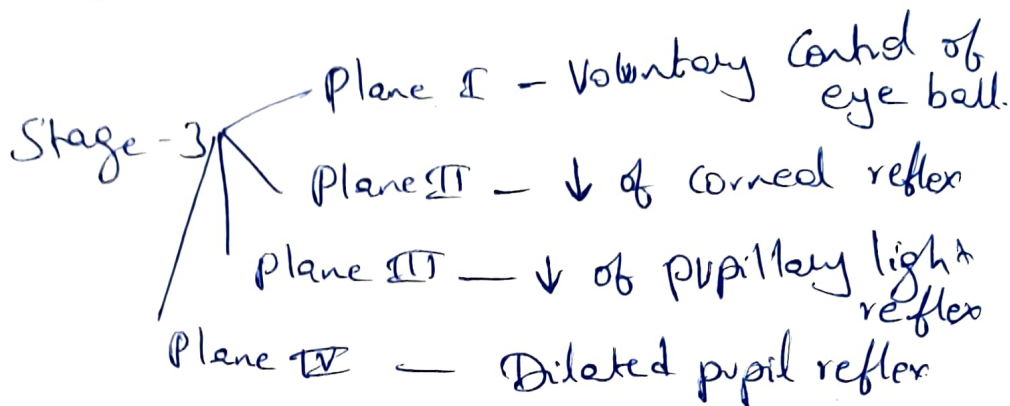
- Patient loss consciousness.
- \uparrow HR, \uparrow B.P, sympathetic activity \uparrow
Pupil is dilated.
- Muscle tone is \uparrow , Breathing is irregular

③ Stage of Surgical Anaesthesia

- ~~Dr~~ Respiration becomes regular.
- Muscle relax, Reflexes & lost.
- Intercostal muscles are paralyzed
(Abdomen)

④ Stage of Medullary Paralysis

Resp. & vasomotor centre are depressed,
Death occurs within few min.



Classification

I - Inhalation

Gas - Nitrous oxide (N_2O)

Volatile oil
Liquid

Ether, Halothane (EH-SIDE)
Sevoflurane, Isoflurane (A-P)
Desflurane, Enflurane
(ether odour)
(↑ Secn)

Conc effect (Conc of gas remains in alveoli)
or
(second gas effect) not
anesthesia

II Parenteral (IV)

Inducing agent: Thiopentane, Etomidate,
(TEMP.) Methohexitane, Propofol (G-R)
(Anesthetic)
(Anesthetic)

Benzodiazepines: Diazepam, Lorazepam
Midazolam (DLM)

Dissociative anaesthesia
(Produces catalepsy)

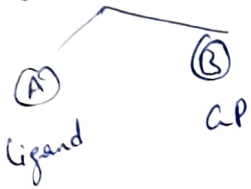
- Ketamine. (Phencyclidine)
(IV for asthma)
Structural analogue
C-I in epilepsy patients.

MAC — Min Alveolar Conc - Conc of vapour in the alveolus of lungs that is needed to prevent movement in 50% of subs.

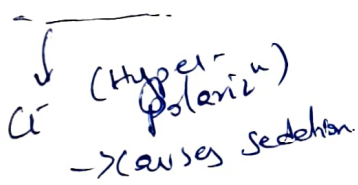
High Lipid Part. coeff \uparrow MAC.

Different Targets

① GABA-R — Halothane, Propofol, Barbiturates, BDZ



② Glycine R — (Spinal cord & Medulla) Halothane, Propofol, Isoflurane (IAP Recept)



③ NMDA R & Aspartate \rightarrow Inh by Ketamine N_2O (Na⁺ Blockage)

Inhalation Anaesthetics \rightarrow cause cough

④ Ether — Irritating, Inflammable & highly explosive (Potent)

⑤ N_2O & Halothane — Non-Irritating Non-Inflammable

Excellent Analgesic — Ether & N_2O
Pos " — Halothane.

* Hepatotoxicity — Halothane.
(cause Bronchodilation preferred in anaesthetics)
preferred

N₂O

- Non-Irritating, Non-Inflammable.
- Good Analgesic but poor M Relaxant Activity
- \bar{c} O₂ \rightarrow Dental analgesia.
- Cause hypoxia.

70:30

N₂O: O₂

Ether:

- Irritant, Inflammable, highly explosive.
- Potent & excellent Analgesic & Anaesthetic.
- Muscle relaxn ~~of~~ by reducing Ach out from motor nerve ending.

Halothane: ^{Induction:} (2-4%) (Dissolves in rubber)

- Non-Irritant, Non-Inflammable.
- Poor Analgesic
- Potent Anaesthetic (highest)
- Muscle Relaxant.
- Hepatotoxic drug, Respiratory depression.
- For prolong delivery (Intestinal & uterine contraction)
- Depresses Respiration
- Best uterine Relaxant.

Sensitizes heart to catecholamines

C.I. & pheochromocytoma Patients

Enflurane

- Halogenated Ether.
- Faster acting Subs of Halothane.

Methoxyflurane - Nephrotoxicity.

Sevoflurane - Neurotoxic at high doses.
(sweet smelling)

Parenterals (IV)

Thiopentone (2.5-6)

- Ultra short acting thiobarbiturate.
- 5-8 min, highly lipid soluble.

Thiopentone Na (3-5 mg/kg)

- Day case surgery.
- causes pain

Propofol; (Anti-emetic)

- For Induction & maintenance.
- 1% emulsion (IV)
- Rapidly acting, but develops allergic rxn. (15-45 sec)
- Do not cause bronchospasm that's why in Asthmatic.
- Produce Resp depression.

Ethomidate:

- 4-8 min.
- poor analgesic.
- Induction in old patients, CVS disorders
- causes CVS & Resp depression.

cause
max post-operative
nausea & vomiting

Benzodiazepams

- poor analgesic, No post-operative nausea vomiting.

Ketamine: ^{In} σ Opioid induced hyperalgesia

N-methyl D-aspartic acid

Blocks NMDA type of glutamate R

- For Head, Neck & face. (In Hyperactive Airways)
- strong analgesic by inhibiting glutamate R

↑ ICT
↑ NOP
↑ BP

Opioid Analgesia

Fentanyl :- potent opioid analgesic.

Pemifentanyl - faster
congener of fentanyl.

Desmedetomidine - Actⁿ of central α_2 Adr. R

Preanaesthetic Medication

- BDZ (To relieve anxiety)
- Atropine / Glycopyrrolate (\downarrow secrⁿ)
- Opioid analgesics Morphine, Pethidine
(relieve pre & post operative pain)
- Antiemetic — Metoclopramide (gastric emptying before surgery)
Domperidone
- \downarrow acidity & gastric sec — Ranitidine
Omeprazole