

General Anaesthetics

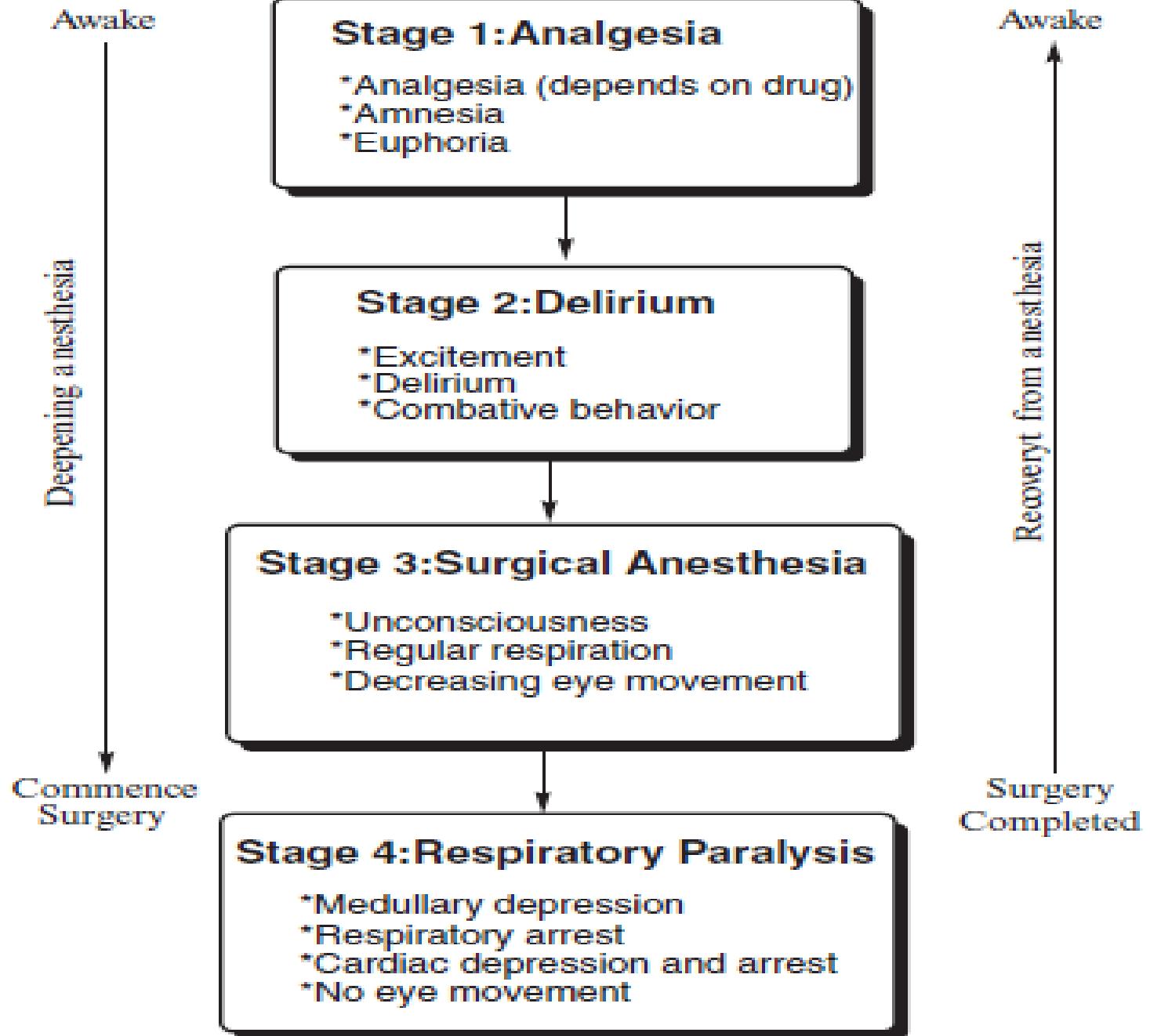
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General Anaesthetics

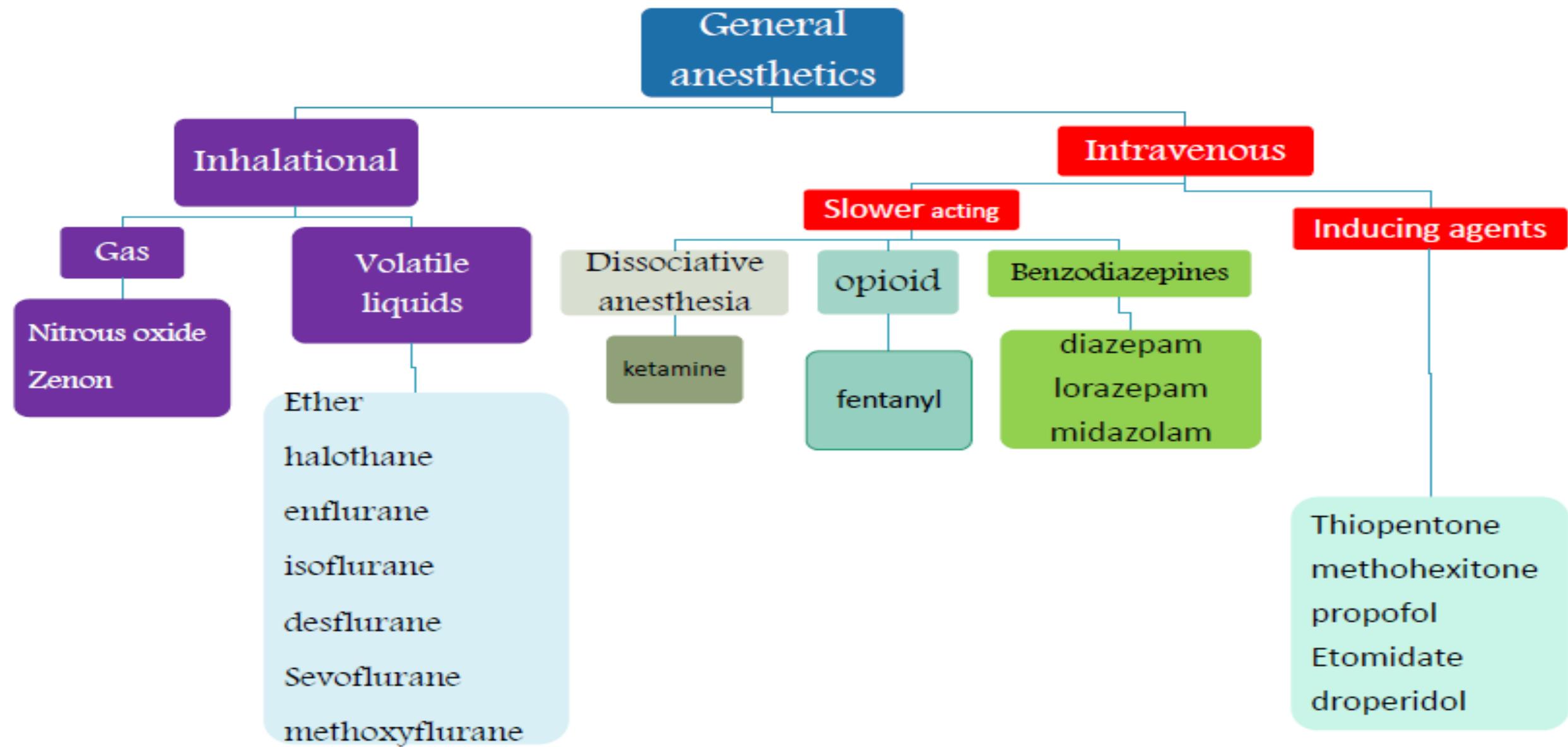
Introduction

- General anaesthetics(GAs) are drugs which causes **reversible loss of all sensation and consciousness.**
- These are CNS depressant and characterized by:
 - *loss of consciousness*
 - *loss of sensation &*
 - *adequate muscle relaxation.*

- These are group of drugs that produce loss of consciousness and therefore loss of all sensation (lack of feeling) by depressing the CNS.
- They are characterised by a state of unconsciousness, analgesia and amnesia (loss of memory) with skeletal muscle relaxation and loss of reflexes (automatic response to a stimuli).
- These are employed for surgical operation.



CLASSIFICATION



Classification:

1. Inhalation general anaesthetics (Administered through inhalation process)

I) Liquids

a) Anaesthetic Ethers:

- i) Diethyl ether : $C_2H_5 - O - C_2H_5$
- ii) Vinyl ether : $CH_2=CH-O-CH_2-CH_3$

iii) Methoxyflurane : $CH(Cl_2)-CF_2-O-$

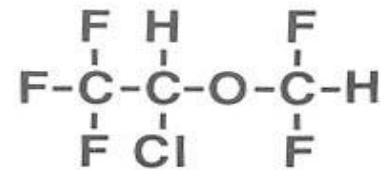


iv) Isoflurane : $CF_3-CH(Cl)-O-CH(F_2)$

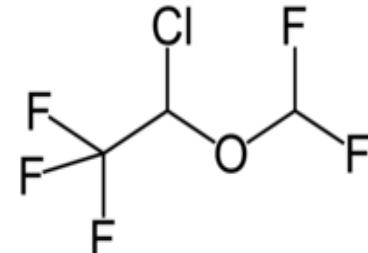
v) Enflurane $CH(Cl)(F)-CF_2-O-CH(F_2)$

vi) Desflurane (newer) : $CF_3-CH(F)-O-CH_2F$

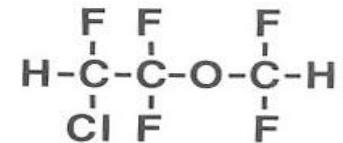
vii) Sevoflurane (newer) : $CF_3-CH(CF_3)-O-CH_2F$



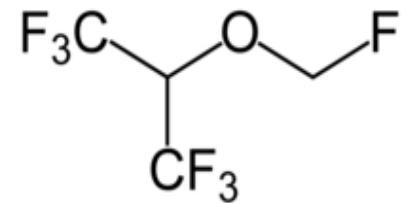
isoflurane



Isoflurane



enflurane



Sevoflurane

b) Haloalkanes

i) Halothane (2-Bromo-2-chloro-1,1,1-trifluoroethane): CH(Cl)(Br)-CF₃

ii) Ethyl chloride : C₂H₅Cl

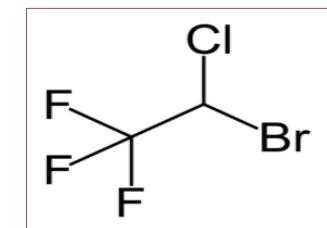
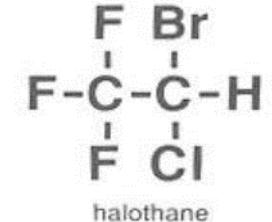
iii) Trichloro ethylene: CH(Cl)=C(Cl)₂

iv) Chloroform: CHCl₃

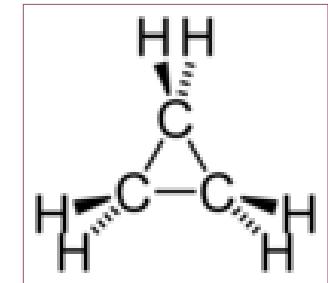
II) Gas

i) Cyclopropane

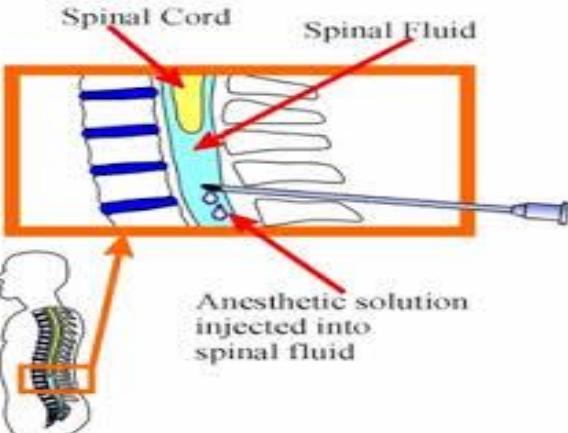
ii) Nitrous oxide: N₂O (Laughing gas:Hartford dentist HORACE WELLS first demonstrated in 1844)



Halothane



2. Intravenous general anesthetics (Administered parenterally)



I) Ultra-short acting Barbiturates:

- i) (Thioentone/ Thiopental)sodium
- ii) Thiamylal sodium
- iii) Methohexitol sodium

II) Aryl cyclohexyl amine

- Ketamine

III) Benzodiazepine

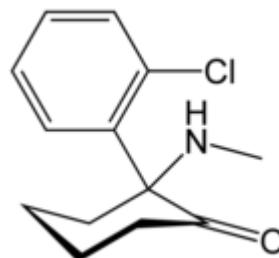
- Midazolam

IV) Narcotic analgesics

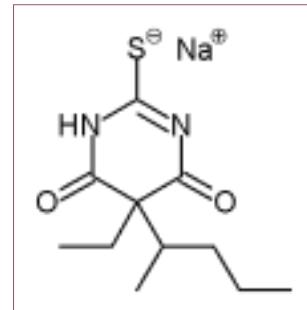
- Alfentanil
- Fentanyl(Citrate)

V) Miscellaneous:

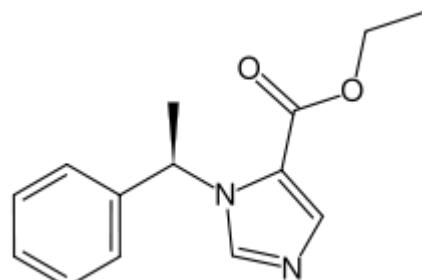
- Etomidate
- Propofol
- Hydroxydione sodium citrate



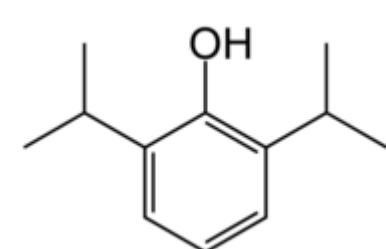
Ketamine



Thiopental



Etomidate

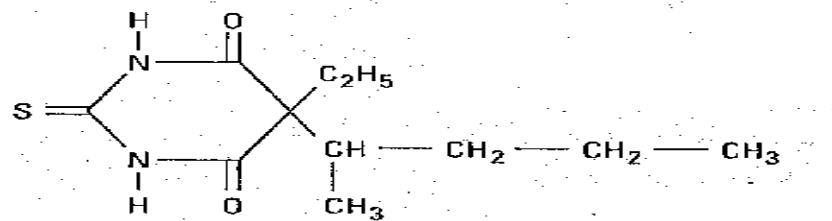


Propofol

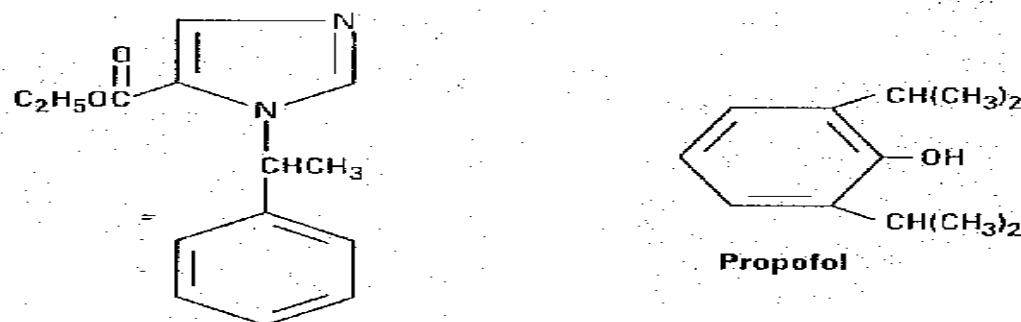
3. Basal anaesthetics:

These are agents which induce a state of unconsciousness but the depth of unconsciousness is not enough for surgical procedure.

- Narcotic analgesics : Fentanyl(Citrate)
- Tribromo ethanol
- Paraldehyde

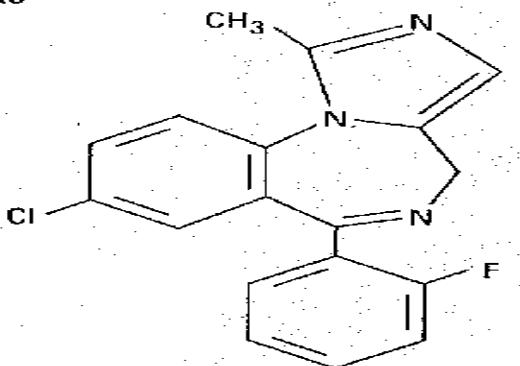


Thiopental

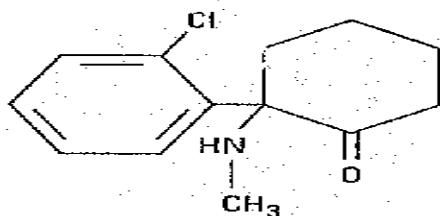


Propofol

Etomidate

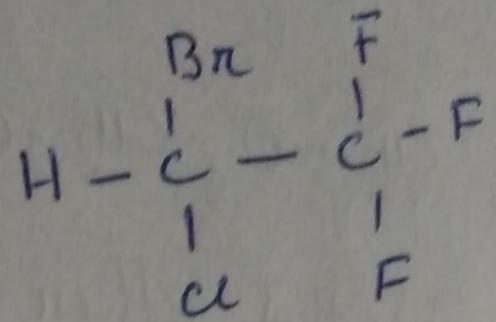


Midazolam

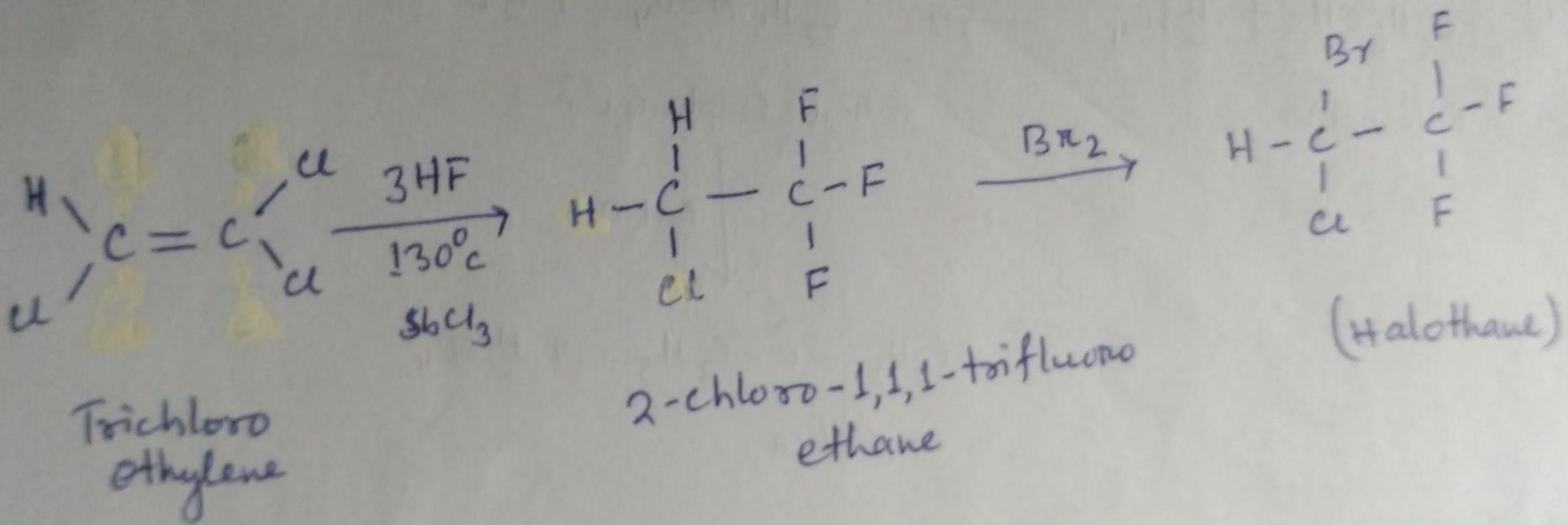


Ketamine

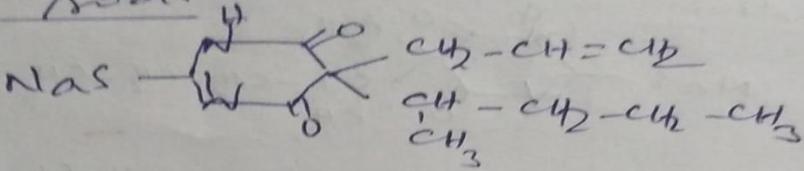
② Halothane



2-Bromo-2-chloro-1,1,1-trifluoroethane

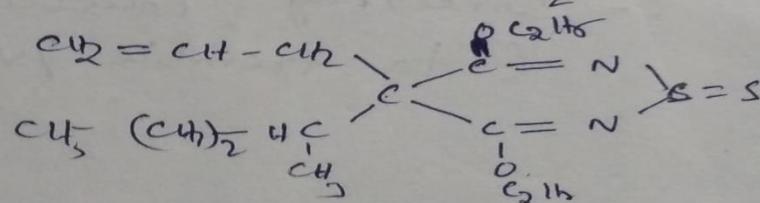
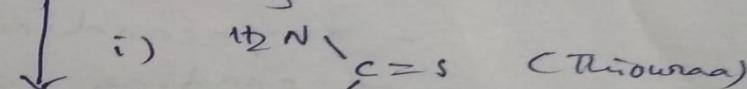
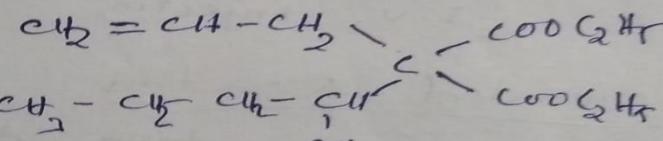
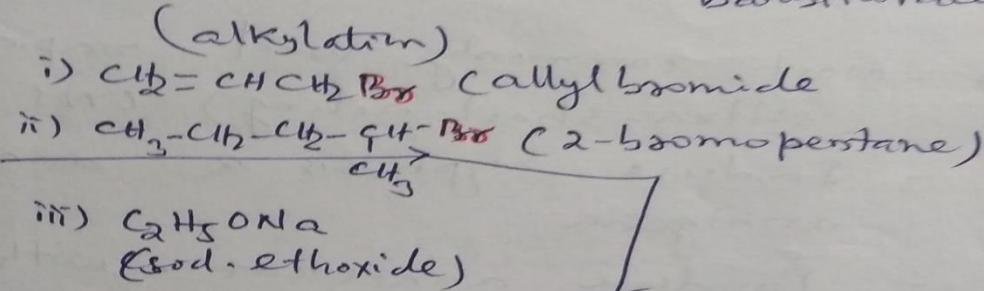
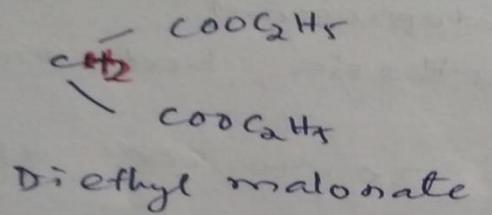


Thiamylal sod.



sod. salt of 5-allyl-5-(1'-methylbutyl)-2-thio barbiturate

Synthesis



use GA
unrelated
or effect: same
as thiopentone

