



**Round :** Anesthesia - Lecture 6

**Group no :** B 3

**Done By :** Fatima Abu-Assal

## IV anesthetic drugs :

✦ Triad of anesthesia: hypnosis + analgesia + muscle relaxation

✦ MOA: ALL general anaesthetics activate the inhibitor effect of GABA except nitrous oxide and ketamine they inhibit the excitatory effect of a glutamate at NMDA receptors (لو تلاحظي بالنهاية) (الطريقتين بتثبط)

lipid soluble so cross BBB, it Onset 30sec to 1min and short duration of action : ✦ سمات مشتركة ✦ due to redistribution from brain to fat and skeletal muscles , metabolized in liver and excreted ✦ renally ✦

✦ Ketamine (The only vasodilator and analgesic drug) (و فيه اشي حلو انه مسكن جمييل ICP cuz of cerebral VD برفع ال (عكس كل اخوانه) Ketamine)

✦ Antidotes : Flumazenil for benzodiazepines /// Naloxone for opioids

## Barbiturates :

✦ Enzymes inducer

✦ Potentiate the action of GABA @ and beta بقعد بين

✦ Long acting: Phenobarbital // short acting: thiopental

✦ يحفظ في محلول قاعدي ph=10-10.5

✦ Doesn't predispose for sepsis unlike the propofol

✦ Narrow therapeutic effect so they can't be used for maintenance and continuous infusion

✦ Cerebral effect : increase CPP

✦ RS effects : central apnea so intubation is needed as well as mechanical ventilation/ decrease (blunt) cough or gag reflex

✦ CVS effect: decrease MAP/ decrease systematic vascular resistance/ hypotension / Reflex tachycardia/ CO maintained

✦ ✦ Thiopental: rapid acting and short duration of action (5-10min)

✦ بنام المريض بنص دقيقه و كمان اشي مميز هو بعطيه للصرع (status epilepticus)

✦ Metabolized by the liver so we should be careful in case of liver disease

✦ Narrow therapeutic index / ✦ can precipitate porphyria Barbiturates promote amino levulinic acid synthetase,

✦ لو واحد حمار حقنة (بالشرية) ان) حي عمل vc و ممكن يوصل لل gangrene !!

## Propofol:

✦ First choice for induction of general anesthesia and sedation

✦ Increase binding affinity GABA to GABA receptors

✦ Rapid onset as thiopental and fast recovery

✦ No hangover symptoms

- ✦ Anti-emetic effect
- ✦ RS: **النفس** thiopental
- ✦ Release histamine but not contraindicated in those with asthma
- ✦ █ CVS: hypotension and **bradycardia** because of direct myocardial depressant and inhibits baroreceptors
- ✦ Can be used for induction, maintenance, short procedures and day case surgeries (ambulatory surgeries)
- ✦ Can cause septicemia/ statical syndrome/ hyperlipidemia
- ✦ propofol infusion syndrome ( metabolic acidosis/ rhabdomyolysis /cardiac arrest)
- ✦ Treat not prevent N-V /Bronchodilation effect/ **antipruritic**
- ✦ Contraindications in patients with allergies to eggs product soy beans or soy products
- ✦ █ Pain if injected intravenously **مهمم**

## Etomidate:

- ✦ Depress RAS
  - ✦ safe drug on heart and lung (stabilizer) **And in traumatic brain injury**
  - ✦ █ Drug of choice in patients with **cardiogenic shock**
  - ✦ Adrenal suppression
  - ✦ █ Severe nausea and vomiting
  - ✦ █ contraindicated in: adrenal impairment patients ( **Addison** ) ( inhibit beta enzyme) and renal impairment
- CS**
- Can cause myoclonus**

## Ketamine:

- ✦ Potent **sympathetic stimulator** so it results in HTN elevated HR, BP ,CO
- ✦ No effect on RS no **blunt reflexes** no **central apnea**
- ✦ Potent bronchodilator so it's a **good induction agent** and **asthmatic patient**
- ✦ █ The only drug has an analgesic effect
- ✦ Induce dissociate upstate
- ✦ █ Drug of choice in case of hypovolemic shock
- ✦ █ Drug of choice in war zones
- ✦ Side effects: diplopia nystagmus /direct myocardial depression /slight elevation in intraocular pressure /hallucinations
- ✦ █ contraindications: angina /stroke /hydrocephalus as it increases ICP / in psychiatric disorders / in glaucoma /in **hemorrhagic** stroke /**UNCONTROLLED** HTN

★ In cases of traumas, if the trauma is below the head and the patient doesn't have a stable hemodynamics the drug of choice is ketamine. but if the trauma includes the head, or we have basal skull fractures (raccoon eyes/rhinorrhea), ketamine is contraindicated. Give etomidate

**Induce dissociative state**

- Cardiac tamponade → etomidate
- multiple trauma + hemodynamic unstable → Ketamine

## Benzodiazepines :

- ✨ Have an antidote (**Flumazenil**)
- ✨ Used in induction anesthesia/ anticonvulsants but not status epilepticus /antidepressants / anxiolytics (midazolam)
- ✨ They are either short intermediate or long acting drugs
- ✨ Side effects: ال نفس al barbiturates and dose dependent يعني hypotension and respiratory depression in high doses

3. Ataxia, Headache, Vertigos, Blurred Vision and Weakness

## Opioids:

- ✨ **Naloxone** is the antidote
- ✨ most common adverse effect is chest rigidity which result in difficult ventilation this indicates toxicity and we can only treat it with naloxone.