



# ICU

## L10

**Anesthesia Technologist**

BCS. Anesthesia. and IC  
diploma. Community health

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# EMERGENCY DRUGS

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- Adrenaline
- Lidocaine
- Amiodarone
- Calcium gluconate
- Frusemide
- Atropine
- Dopamine
- Noradrenaline
- Adenosine
- Metoprolol
- Dobutamine
- Chlorpheniramine
- Dexamethasone
- Hydrocortisone
- Midazolam
- Tramadol
- Sodium bicarbonate

# ADRENALINE

## Mechanism of action:

- $\alpha$ -adrenergic-  
**vasoconstriction** (which can also reduce bleeding) and mydriasis.
- $\beta_2$ -adrenergic -  
**bronchial relaxation**

## Dose

- 1ml – 1 mg
- Onset: 3-5 minutes (quick)
- Cardiac arrest every 3- 5 mins
- If anaphylaxis: 0.5ml IM
- Infusion : SS- 5ml+45 ml ns
- DS- 10ml+40ml ns



## Indications

- Cardiac arrest
- Anaphylaxis
- Acute asthmatic attacks

## Nurses responsibility

- Proper labelling
- Continuous monitoring
- Check q5min B/P, pulse rate
- After giving flush it immediately with 3-5 ml of NS.
- Ensure rhythm and watch carefully

# ATROPINE

## Mechanism of action:

- Anti-arrhythmic, Anticholinergic (anti-muscarinic)
- These actions increase cardiac output & heart rate, decrease by blocking vagal stimulations in heart
- Blocks the acetylcholine receptors to dries the secretions

## Dose

- 1ml – 0.6mg
- Onset: immediately
- Max dose: 3 mg
- If OP poisoning : 4mg or



## Indications

- Bradycardia < 40-50 bpm
- AV heart block
- Biliary surgery

## Nurses responsibility

- I/O chart must to check urinary retention
- Continuous ECG monitoring
- Assess GI functions
- Check for any dryness of mucous membrane

# SODIUM BICARBONATE

## Mechanism of action:

- Alkanilizer
- Reverse acidosis

## Dose

- 10ml-7.5%
- If severe acidosis, 50 ordered means 5 ampoules have to administer



## Indications

- Metabolic acidosis
- Salicylate poisoning

## Nurses responsibility

- Check ABG every 4 hours if infusion ongoing
- Check for the serum electrolytes
- Asses respiratory status, pulse rate if abnormal notify

# FUROSEMIDE

## Mechanism of action:

Inhibit reabsorption of sodium and chloride at proximal and distal tubule and in loop of henle

## Dose

- 1ml –10 mg
- First dose-20-80mg
- Second dose after 6<sup>th</sup> hour of 1<sup>st</sup> dose
- Onset: 2-3 min
- Max dose: 600-800 mg



## Indications

- Pulmonary oedema
- Hepatic failure
- Nephrotic syndrome
- Ascites
- Hypertension

## Nurses responsibility

- I/O chart must to check fluid loss
- Assess for hypokalaemia & hypotension
- If high doses check for tinnitus or hearing loss

# CALCIUM GLUCONATE

## Mechanism of action:

- Calcium needed for maintenance of nervous, muscular & skeletal functions
- Mainly cardiac contractibility

## Dose

- 10ml –10 %
- Ensure 10:10:10
- Max dose: 3 gram
- Slow IV



## Indications

- Prevention and treatment of hypocalcaemia
- Hyper-magnesemia
- Hyperkalaemia

## Nurses responsibility

- Continuous cardiac monitoring
- ECG: check for the reverse of QT and T waves
- Check for calcium levels



# ADENOSINE

## Mechanism of action:

- Anti-arrhythmic
- Slows conduction time through the **A-V node**, can interrupt the re-entry pathways through the **A-V node**, and can restore normal sinus rhythm in patients with paroxysmal supraventricular tachycardia

## Dose

- 2ml – 6mg
- Onset: 20-30 seconds and the duration of action is **< 10 seconds**.
- Max dose: 12 mg



## Indications

- Supra Ventricular Tachycardia

## Nurses responsibility

- Don't administer through central line (may cause asystole).
- Don't give more than 12 mg Adenosine as a single dose.
- After administering adenosine , flush I.V. line immediately and rapidly with normal saline solution to drive drug into bloodstream.
- Monitor heart rhythm for new arrhythmias after administering

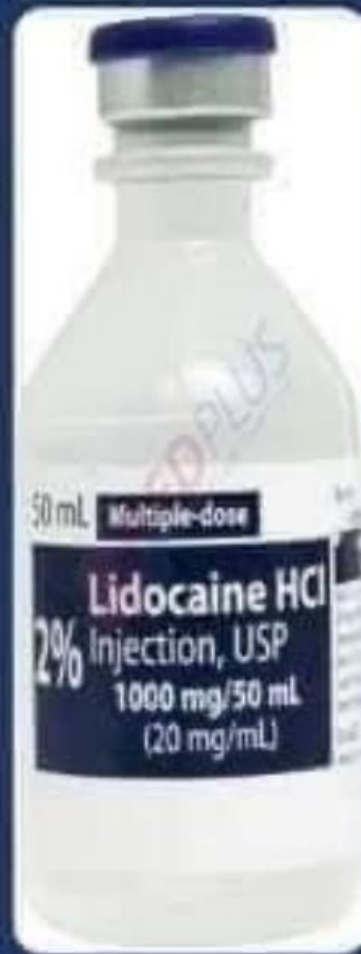
# 2% LIDOCAINE

## Mechanism of action:

Type 1 antiarrhythmic:  
decreases diastolic  
depolarization, decreasing  
automaticity of  
ventricular cells

## Dose

- 1ml – 20mg
- 50-100mg  
(25-50mg/min)
- Repeat q3-5 min
- Max 300mg / hr



## Indications

- Ventricular dysrhythmias
- Digoxin toxicity

## Nurses responsibility

- Continuous cardiac monitoring for dysrhythmia
- ECG: if increases PR & QRS Segments stop or reduce rate.

# AMIODARONE

## Mechanism of action:

- Anti-dysrhythmic
- It works on cardiac cell membrane and relax the smooth muscles of myocardium

## Dose

- 1ml – 50mg
- 150 mg for 1<sup>st</sup> dose
- 360 mg for next 6 hours
- Maintenance 540 mg for remaining 18 hours



## Indications

- Unstable ventricular tachycardia
- Ventricular fibrillation
- Atrial flutter

## Nurses responsibility

- Monitor ECG continuously
- BP for hypo/hypertension
- Check for any dyspnoea, fatigue, cough, fever and chest pain if persist discontinue

# MIDAZOLAM

## Mechanism of action:

Sedative, anti anxiety,  
hypnotic

Depress subcortical  
levels in CNS

## Dose

- 1ml – 1mg
- Max dose: 15 mg/day



## Indications

- Pre operative sedation
- Sedation for diagnostics
- Endoscopic procedures
- Intubation
- anxiety

## Nurses responsibility

- Monitor B/P, pulse, respiration.
- Keep crash cart near by
- Assist with ambulation until drowsy periods end

# METOPROLOL

## Mechanism of action:

Anti-hypertensive  
Lowers B/P by beta  
blocking effects

## Dose

- 1ml – 1mg
- Max dose: 400 mg/day
- Slow IV



## Indications

- Mild to moderate hypertension
- NYHA class II, III heart failure
- Cardiomyopathy

## Nurses responsibility

- Monitor B/P for every 5 mins
- Before administration check for the manual B/P and pulse rate if significant changes or PR <50bpm

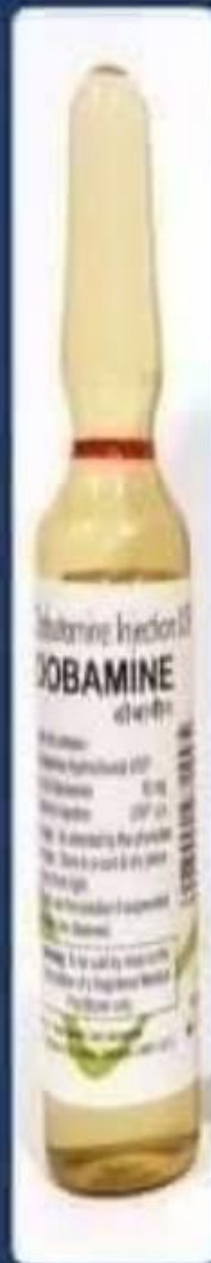
# DOBUTAMINE

## Mechanism of action:

- Adrenergic direct acting cardiac stimulant
- Increased cardiac contractibility,
- Increase cardiac output without increase heart rate

## Dose

- 1ml - 50mg
- SS-5ml+45ml ns
- DS-10 ml+40ml ns
- Administer only by IV infusion.



## Indications

- Cardiac surgeries
- Short-term treatment of adults with Cardiac decompensation

## Nurses responsibility

- Assess for hypovolemia and correct
- Check for bp, chest pain, LOC
- If bp increases titrate the value
- Check for electrolyte and urine output
- Titrate on the basis of the patient's hemodynamic/renal response.

# DOPAMINE

## Mechanism of action:

- Adrenergic agent
- Vasoconstrictor & inotropic effect Causes increased cardiac output, renal blood flow and sodium excretion

## Dose

- 1ml-40mg
- 5ml-200mg
- Ss-5ml+45ml ns
- DS- 10ml+40ml ns



## Indications

- Shock
- Hypotension
- Cardiogenic or septic shock

## Nurses responsibility

- Assess for hypovolemia and correct
- Check for bp, chest pain, LOC
- Administer only by IV infusion no bolus
- Only administer by large veins
- More prone to get extravasation

# NOR ADRENALINE

## Mechanism of action:

- Adrenergic agent
- Vasoconstrictor
- BP, heart rate, cardiac output increases

## Dose

- 1ML-1MG
- SS -4 ml+46ml 5D
- DS- 8ml+42ml 5D



## Indications

- Acute hypotension
- Shock

## Nurses responsibility

- Continuous monitoring for BP every 5 mins
- If BP increases may titrate the dose
- Notify if urine output  $<30\text{ml/hr}$



# HYDROCORTISONE

## Mechanism of action:

- Corticosteroid
- Anti-inflammatory,
- Immunosuppressive and salt-retaining (mineralocorticoid)

## Dose

- 100–500 mg,
- 3–4 times in 24 hours



## Indications

- Severe inflammation
- Adrenal insufficiency
- Ulcerative colitis
- Asthma
- COPD

## Nurses responsibility

- Check for hypokalaemia & hyperglycaemia
- Plasma cortisol level if long term
- Check for any signs of infection with WBC counts
- Ensure antacids are there or not

# CHLORPHENIRAMINE

## Mechanism of action:

- Antihistamine

## Dose

- 1ml-22.75 mg
- Max dose 40mg/ day
- Taken only for short time dose



## Indications

- Allergic Rhinitis
- Cold Symptoms
- Urticaria
- Allergic Reaction

## Nurses responsibility

- Check for sign and symptoms of CNS depressant
- Check for nausea, vomiting and constipation

# DEXAMETHASONE

## Mechanism of action:

- Corticosteroid, Anti inflammatory, Immuno- suppressant
- Decrease inflammation by suppression of polymorpho nuclear leucocytes

## Dose

- 1 ml- 4mg
- Initially 0.5–20 mg



## Indications

- Any inflammations
- Allergies
- Cerebral oedema
- Septic shock

## Nurses responsibility

- Monitor for hypo/hyper glycaemia
- Potassium level need to assess
- Frequently take BP, monitor body weight (signs of Na+ & H<sub>2</sub>O retention).
- Assess for signs of infections

# BRONCHODILATOR

- Drug of choice- Salbutamol
- Uses-
  - Acute Asthmatic episodes
  - Allergic reactions
- Route of administration- Metered Dose Inhaler, spacer(for pediatric patients)



## Dose and administration

- Produces bronchodilatation within 5 min and last for 2-4 hours
- one or two inhalations every 4-6 hours is recommended dosage



**THANK  
YOU!**