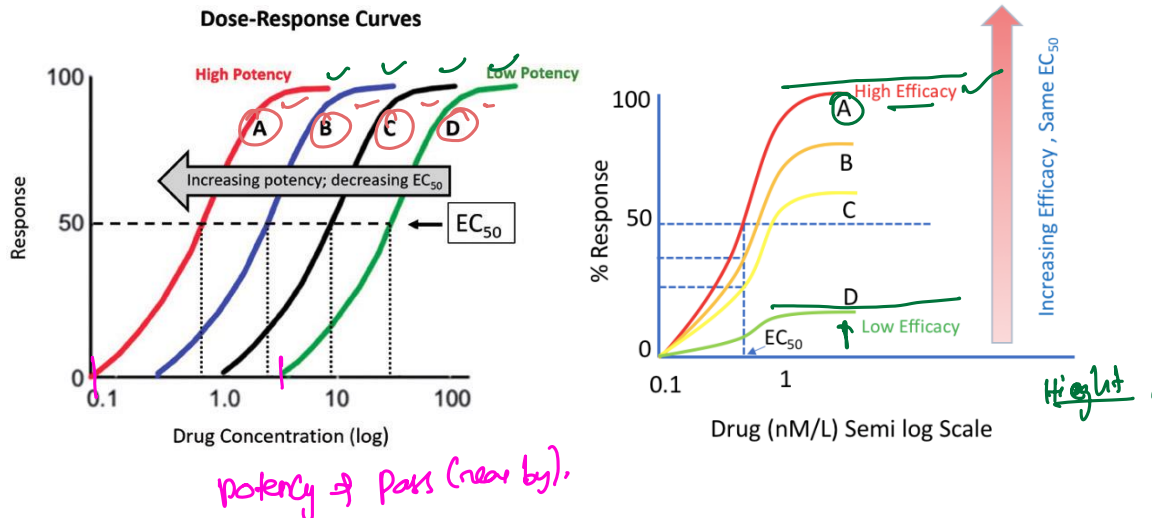


Pharmacology

1. Phases of Clinical Trials :

Phases	Done on	For
0	Healthy Human Volunteers	Microdosing of drug
I	Healthy Human Volunteers	Dose-ranging on healthy volunteers for <u>safety</u> and <u>tolerability</u> (MTD)
II	Patients (lex. no. of pts)	Efficacy Testing
III	Patients (500-1000)	Confirm Efficacy and safety
IV	Patients	Post marketing surveillance, long-term outcomes in diverse patient populations and rare side effects

2. Efficacy and potency graph



3. Formulas (Vd , Clearance , Therapeutic Index)

Measure of drug safety calculated ; $T.I = LD50 / ED50$

Volume Of Distribution $V_d = \text{Given dose} / \text{Conc in Plasma}$

Maintenance Dose - $MD = \text{Clearance} \times \text{Target Plasma Concentration}$

Loading Dose - $V_d \times C$

4. Enzyme inducers and Inhibitors

Enzyme Inducers decrease level of other drugs (Cytochrome P450)

- ✓ Alcoholism
- ✓ Griseofulvin
- ✓ Phenobarbitone
- ✓ Rifampicin
- ✓ Smoking
- ✓ Carbamazepine
- ✓ Phenytoin

↑ metabolism.
A CYP450 cell phone

Enzyme Inhibitors increase level of other drugs :

- ✓ Valproate ✓
- ✓ Ketoconazole ✓
- ✓ Cimetidine ✓
- ✓ Cimetidine
- ✓ Erythromycin ✓
- ✓ Isoniazid ✓
- ✓ protease - (HIV) ✓
- ✓ Omeprazole ✓

Coz deficiency : B₆ (pyridoxine).
i6.

5. Physostigmine and Pyridostigmine uses

Anti - Cholinesterases (Indirect acting agonist)

Tertiary Amine (CNS)

Physostigmine ←

Doc of Atropine toxicity →

Datura Poisoning →

Belladonna →

Donepezil / Galantamine

Rx of Alzheimers (Increase Ach) ←

↓ ACh

Quaternary Amine (Periphery)

Neo / Pyridostigmine

Rx of Myasthenia gravis, Cobra bite,

Toxicity & Skeletal muscle relaxants (Curare / Curonium)

Dx of Myasthenia Gravis

Edrophonium (Short acting) Test - Tensilon Test If confirmed.

MG → Neo/Pyrido

6. OPC and Carbamate poisoning.

Organophosphates & Carbamates (Carbaryl, Propoxur) Ex of OP: Parathion, Malathion, Chlorpyrifos, Nerve gas (Tabun, Sarin, Soman)

C/F of organophosphate poisoning:

DUMBLES

Increase Secretions - Lacrimation, Salivation, Emesis, Urination

Miosis - Pinpoint pupil *

Bronchoconstriction

Bradycardia

Diarrhoea ←

Lethargy - muscle weakness ←

Atropine (only blocks receptor but still increased Ach is there) does not reverse the effect on Nn
i.e., Muscle effect

Rx of Toxicity Carbamate poisoning Atropine [- oximes C/I]

Organophosphate poisoning Atropine + Pralidoxime (it is a Ach esterase enzyme reactivator)

7. Atropine uses and toxicity

Patient was robbed on Roadside or railway side with a powder (Datura / Belladonna) and presents with

D - Dry mouth, Delirium

H - Hyperthermia

A - Agitation

T - Tachycardia

U - Urinary

R - Retention

A - Accommodation lost (Blurred vision, Photophobia)

DOC for treatment of atropine poisoning is physostigmine.

8. Anti Parkinson and Alzheimer drugs

Rx of drug induced Parkinsonism (Caused by) Anti- Psychotics

• Benzotropine

• Benzhexol (Trihexiphenidyl)

• Bipiridin

↓ Dopamine -
parkinson & low-dose

Rx of Alzheimer's disease:

Cholinergic drugs

- Donepezil (DOC), Rivastigmine, Galantamine, , Adacanamab,

Memantine - NMDA blocker for severe disease,

Adc → Alzheimer's d's.

9. Receptor comparison of adrenaline , NA, Dopamine and dobutamine.

	Adrenaline- α_1 , β_1 , β_2	Nor-adrenaline- α_1 , β_1	Isoprenaline- β_1 , β_2
Mean BP	↑	↑↑	-/↓
Heart rate	Direct: ↑↑ Indirect: ↓	Direct: ↑ Indirect: ↓↓	Direct: ↑ Indirect: ↑
Net effect (HR)	↑	↓	↑↑

Adrenaline

1. Anaphylactic Shock - I.M. 1:1000 (0.5 ml)Q

2. Cardiac Arrest IV 1:10,000Q

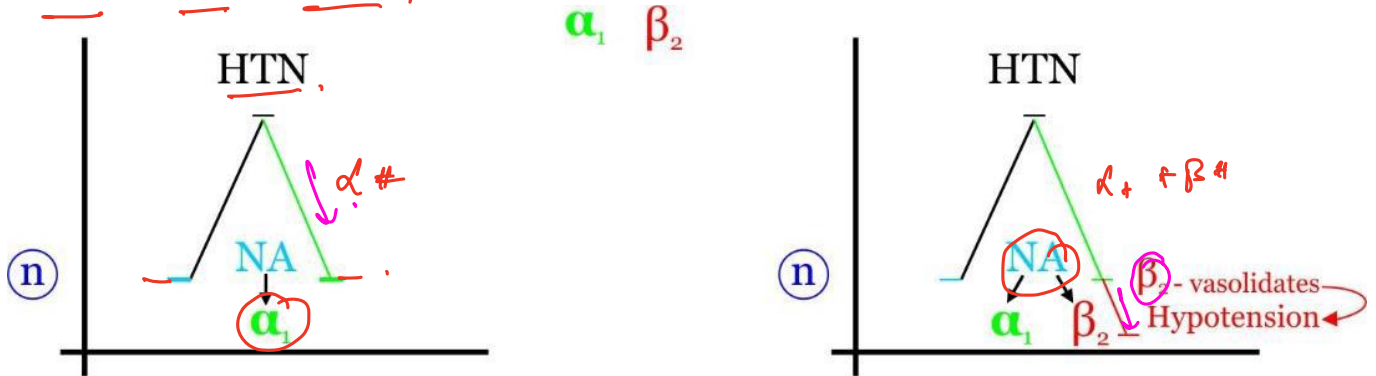
brilliant asthma & E.C route.
(epi-pen).

Nor-Adrenaline → DOC for septic shock

Dopamine ; - Doc in cardiogenic shock + Oliguria Dose dependent: - D1, Beta 1 and α_1

Dobutamine - More Beta1 + (Beta1 >>> Beta 2) - Used in CHF (Inotrope of choice)

Vasomotor Reversal of Dale:



10. Beta 2 agonists

Bronchodilators - asthma.

SABA (<4 hr) - Salbutamol, Terbutaline, (short acting)

LABA (12 hr) - Sal & Formoterol, (long acting).

SE: Tremors, Tachycardia (Palpitations), Hypokalemia.

Tocolytic - Ritodrine, Isoxsuprine

Hyperkalemia
↓
Salbutamol nebulize
Insulin

11. Heparin, warfarin's MOA, Side effects and usage in pregnancy

Heparin (IV / SC)	Warfarin (PO)
Activates AT3	Inhibits Vit K and prevents Gamma-carboxylation 2,7,9,10
Test: PTT	Test: PT (INR)
Short Term use	Long Term use
Antidote: Protamine Sulfate	Antidote: Vit K
Does not cross placenta SE: HIT, Bleeding	Crosses placenta - Teratogenic SE: Bleeding, dermal vascular Necrosis ka purple toe syndrome
LMWH → Inhibit factor Xa, IIa Fondaparinux → Only inhibits factor Xa	

12. DOAC drugs classification

Direct Thrombin Inhibitors - Dabigatran (Taken Orally)

Used in HIT: Lepirudin / Argatroban

Dabigatran Antidote: Idaricizumab

Factor Xa Inhibitors - Rivaroxaban, Apixaban

Antidote - Andexanet alpha

Used in A. fibrillation - Warfarin

Tissue Plasminogen activators - Reteplase and Alteplase

13. Antihypertensive management in all clinical scenarios

Nicardipine - Doc for HTN Emergency (Nicardipine > Nitroprusside)

Nimodipine - Used in SAH (Subarachnoid haemorrhage)

HTN with BPH → **Terazosin** (Alpha 1 Blockers) α_1

HTN in pregnancy Oral Labetalol > Methyldopa

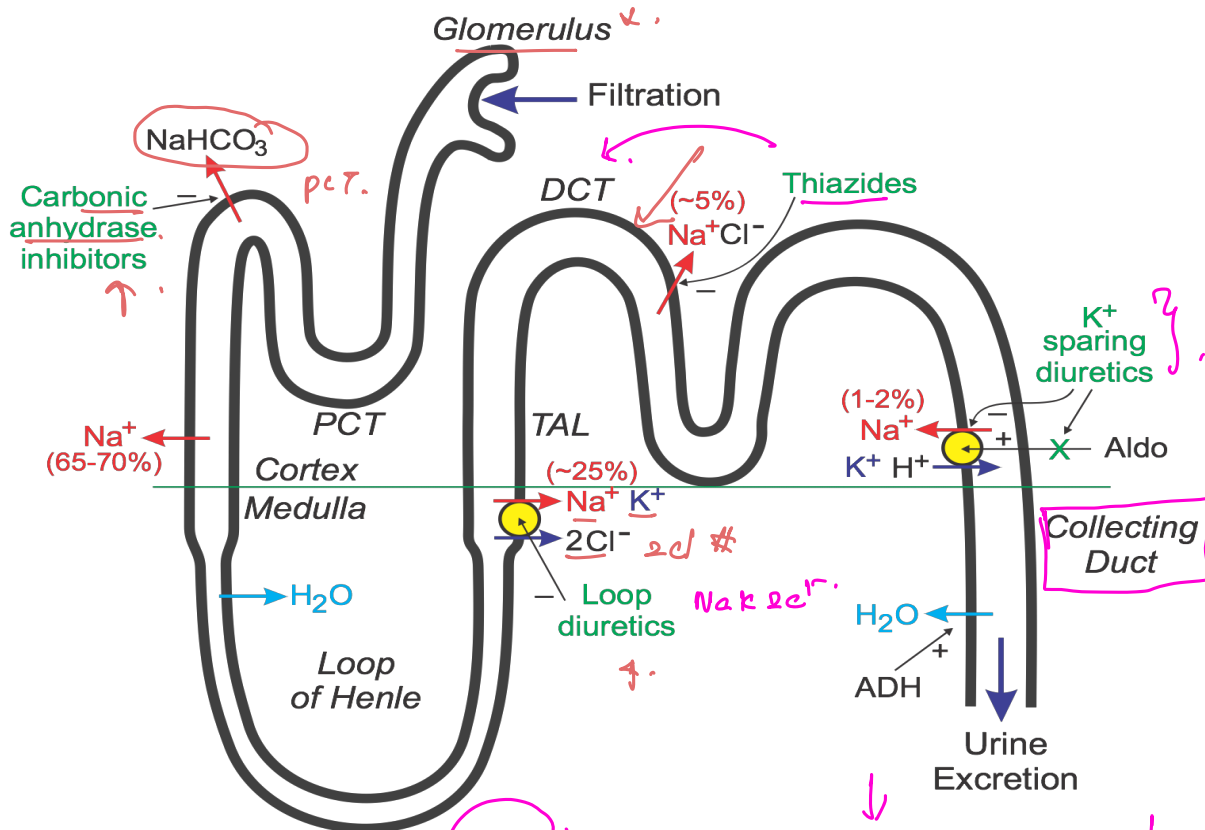
HTN Emergency in pregnancy IV Labetalol → AIHA

Resistant Hypertension → **Spirolactone**

HTN + CKD, DM → **ACEI / ARBs**

HT Emergency
↓
End organ injury

14. Diuretics Place of action, uses and Side effects.



I. **PCT** - **Carbonic Anhydrase** - Acetazolamide → **Mountain Sickness** and **Glaucoma**.

Osmotic diuretics → **Mannitol** used in **cerebral Edema** and **Congestive Glaucoma**.

II. **LOH** - Loop diuretics High ceiling → Inhibit $\text{Na}^+ \text{K}^+ 2\text{Cl}^-$ → **Furosemide**. **Looser Ca^{2+}** .

III. **DCT** - Thiazide diuretics (moderate efficacy) → $\text{Na}^+ - \text{Cl}^-$ symporter
Chlorothiazide, Thiazide Like → **Indapamide** and **Metolazone** (effective in renal failure)

Uses

- Hypertension (DOC)
- Recurrent renal **calcium stones**
- **Diabetes insipidus**
- **Osteoporosis** (lowers Ca^{2+})

IV. **CD** - **K⁺ Sparing diuretics**, **Aldosterone** → Save Na (water) By removing **K⁺** from body

Spirolactone SE: - **Gynaecomastia**

Eplerenone Uses: - Doc of **Edema** in **Cirrhosis** **CHF**, **CONN's SYNDROME** (Hyper aldosteronism)

Epithelial Na^+ channel Blockers — **Triamterene** and **Amiloride** (Doc for **lithium induced DI**)

15. ACE, ARB inhibitors side effects

ACEI: - Captopril Lisinopril Enalapril Doc HTN + DM, HTN + CKD

Side effects: - ACE I → Bradykinin Dry cough (MC) Angioedema (Rare) Teratogenic Taste alteration [Dysgeusia]

captopril → Orthostatic / Postural hypotension

C/lin B/L Renal Artery Stenosis

ARBs: - Telmisartan is a PPAR-g agonist and can reverse insulin resistance.

ACEI & ARBs causes Hyperkalaemia

16. Drugs used in CHF management (EF < 60)

Beta blockers - C/I in Acute CHF & used in chronic

CHF Acute (< 40) (Decompensated)

↓ FLUID → Loop Diuretics (Pulm Edema)

↑ PUMPING → Inotropics

Beta 1 + :- Dobutamine

PDE3 blockers : Milrinone (Inodilators)

CHRONIC CHF (COMPENSATED)

↓ Work Veno and Arteriolar Dilators (Nitrates, Hydralazine, ACEI ARBs)

↓ Fluid

↓ LVH [Cardiac Remodeling]

Inotropic action

Beta -blockers: Carvedilol, Metoprolol, Bisoprolol

Drugs decrease mortality: Sacubitril (ACEI/ARB), Beta Blockers, Ivabradine, Spirolactone

17. Classification of anti-arrhythmics

So - Na⁺ - Ia (K Blocker) QT prolongation / Torsades → Procainamide, Quinidine

→ Ib (open K ch) → Lidocaine, Phenytoin

Ic → Flecainide ← WPW Syndrome

Beautiful - Beta Blockers

Priyanka → K⁺ channel blockers - QT prolongation / Torsades → Amiodarone → Blue man syndrome

Chopra → L-Ca²⁺ # Verapamil - Doc for Prophylaxis PSVT

So- Sodium; Beautiful - Beta; Priyanka - Potassium; Chopra - Calcium. (Channel blockers)

Class V

Digoxin - Used for AF (in patients with CHF)

Atropine - DOC for Bradycardia & AV block

Adenosine - DOC for PSVT

18. Statins MAO, Uses and New drugs

Statins → Lova, Simva, Rosuva, Prava ^{long class} MOA: - HMG Co A Reductase, Decreases LDL

⇒ **FIBRATES**: Feno / Clofibrate Gemfibrozil ^{longer acts} MOA: + PPAR alpha Decreases: **TG (Best)**

⇒ **Niacin (Vit B3)** → increases **HDL**,
New drugs

BILE ACID SEQUESTRANTS → Cholestyramine Cholestipol Cholesevelam

⇒ **Ezetimibe**: Prevents intestinal cholesterol absorption decreases LDL

PCSK-9 blockers: Evolocumab, Alirocumab

↓ They increase **LDL receptors** and decreases LDL

19. Drugs used in Peptic Ulcer ulcer (PPI, Antacids)

Drugs to reduce acid secretion: PPI(prazole), H2 blockers(tidine), M1 blockers(zepine)

Drugs to neutralize acids: Antacids like Sodium bicarbonate, Al(OH)3, Mg(OH)2,

Drugs treating **H.pylori**: Metronidazole/Amoxicillin, Clarithromycin,

Ulcer coating drugs - Sucralfate, Bismuth → not combined with Antacids

Ome/Lansoprazole → A/E; Osteoporosis, ↓ Vit B12 and ↑ Infections

20. Drugs affecting the motility

PROKINETIC DRUGS (GERD)

⇒ **D2 blockers**: Metoclopramide (Can cause dystonia), Domperidone (Levodopa induced vomiting)

⇒ **5HT4 agonist**: Cisa, Mosa, Renzapride,

⇒ **Motilin receptor agonist**: Erythromycin, Mitemcinal, Camcinal

Chemotherapy induced nausea and vomiting:

Early - Ondansetron (24h)

Delayed - Substance P antagonists - Aprepitant

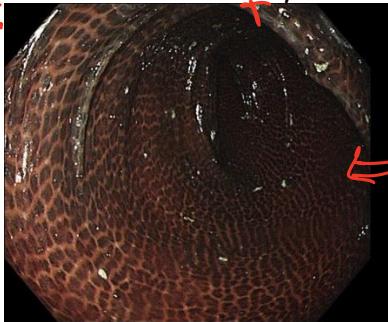
21. Side effects of drugs used in constipation

Bulk-forming: Dietary fibre, Bran, Methyl cellulose, Psyllium (Metamucil)

Osmotic agents: Lactulose, Polyethylene glycol

Surfactant (Stool softener): Docusate sodium, Calcium, Mineral oil, Liquid paraffin

Stimulants: Bisacodyl, Cascara, Senna, Castor oil, Phenolphthalein, Sodium picosulfate



← **Melanosis coli**

22. Drugs used in Osteoporosis

Bisphosphonates (Alendronate)

Doc - Osteoporosis

Hypercalcemia due to malignancies and Paget's disease.

Teriparatide - Stimulate Osteoblasts

Strontium Ranelate → Bone Formation and inhibit Bone Resorption

Denosumab - Inhibits RANK - Ligand

Remosozumab - Ab against Sclerostin

Cinacalcet Ca SR + (New) (sensory Rc)



↑
mandibular
degen
(necrotic)

23. Difference between generations of antihistaminic drugs

H1 - 1st gen: - Cross BBB → Sedation

SE: # M Anti emetic, Dryness

Diphenhydramine - Benedryl

Doxylamine - Doc of morning sickness

Promethazine (maximum Antiemetic & Anticholinergic prop) → can be used for motion sickness.

2nd gen: Do not cross BBB & no Anti muscarinic side effect

Hydroxyzine converts to Cetirizine - Mild sedation

Levocetirizine No sedation

Fexofenacine SE: QT prolongation Astemizole

Uses of 2nd gen: - Allergies, Common cold, Parkinsons (drug induced Parkinsons)

Mountain → acetazolamide.

24. Drugs used in migraine Treatment and prophylaxis

5HT 1B/1D :- Vaso constriction in cranial vessels Agonist Rx of Migraine

Acute Migraine

Mild - Moderate :- NSAIDS

Severe :- Sumatriptan Rizatriptan Frovatriptan

Prophylaxis of Migraine - Propranolol (Doc) Intra nasal - Butorphenol

New Drugs:

1. Lasmiditan 5HT1F receptor and decreases CGRP release.

2. Monoclonal Antibodies Against CGRP - Erenumab, Fremanezumab and Galcanezumab.

3. CGRP Antagonist: Olcegepant and Rimegepant

25. Drugs used in Epilepsy

(GTCS) Generalised Tonic Clonic Seizures (block Na⁺ & K⁺) - Lamotrigine, Valproate Levetiracetan

Lamotrigine → S/E; SJS, TEN

Valproate → S/E; Liver damage, Pancreatitis and PCOD

Partial / Focal Seizure (block Na⁺ only) Doc - Carbamazepine (Trigeminal Neuralgia)

Absence Seizure (block Ca²⁺ here) < 2 - 3 yrs DOC - Ethosuximide > 3 yrs DOC - Valproate

Vigabatrin → Doc for infantile spasms in Tuberous Sclerosis

TV

ACTH doc for infantile spasms

Eclampsia (seizure) :- MgSO₄

Status Epilepticus :- Lorazepam (BZD)

Febrile Seizure :- Doc Diazepam (rectal), Alternative Intranasal Midazolam

Phenytoin (Partial seizures, GTCS)

S/E: Gum Hypertrophy, Hirsutism, Folate, Vit K and D deficiency, Teratogenicity [Fetal Hydantoin syndrome]

♀ willing to be pregnant → phenytoin/valproate → Leucovorin

26. Drugs used in gout

Acute: DOC: NSAIDS (indomethacin) F/B Steroids

Colchicine inhibits Tubulin → inhibits Neutrophil Migration

Chronic Gout: ↑ uric acid

Allopurinol (Inhibit xanthine oxidase) → DOC for chronic gout

Febuxostat

Probenecid (Increases Excretion)

Recombinant uricase; Rasburicase and Pegloticase → tumor lysis syndrome.

27. Anti microbials Mechanism of action

Cell wall inhibitors:

Firmly - Fosfomycin

Bind to - Beta lactams (inhibit transpeptidase)

Bacterial - Bacitracin

Cell - Cycloserine

Wall - Vancomycin (transglycosylase which helps in elongation step)

Protein Synthesis inhibitors :

Bind at 30S ribosomes:

Aminoglycosides ✓

Tetracyclines ✓

Ry @ AT 30
CELL @ 50

Bind to 50S ribosomes:

Streptogramins ✓

Erythromycin (Macrolides) ✓

Linezolid, Lincosamide

Chloramphenicol, Clindamycin

Metabolism inhibitors

- Sulfonamides → Trimethoprim (T) + Sulfamethoxazole (S) → Pneumocystis jiroveci

- Trimethoprim

- Pyrimethamine

DNA gyrase inhibitors

- Fluroquinolones

- Nalidixic acid

Drugs acting on membranes

- Daptomycin

- Polymyxin B

- Polymyxin E

G-trimoxazole

PCP pneumonia
HIV +ve.

stain: GMS +

crushed
ping pong
ball app

28. Anti neoplastic drugs Mechanism of action and side effects.

Alkylating agents :

Cyclophosphamide - SE: Hemorrhagic Cystitis to prevent → Mesna

Melphan - used in Multiple Myeloma

Busulfan - SE: Pulmonary fibrosis

Platinum Compounds:- *Cisplatin - SE: Nephrotoxic, Ototoxic

Anti - Tumor Antibiotics:- Doxorubicin , Daunorubicin SE: Restrictive Cardio myopathy , Anthracyclins

Antidote : Dexrazoxane

⇒ Bleomycin SE: Pulmonary Fibrosis , Flagellate dermatitis - Tiger skin

Vinka - alkaloids

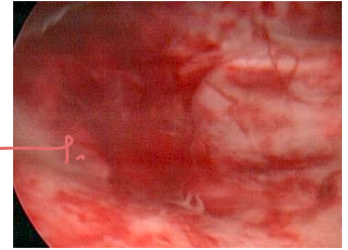
⇒ Vincristine SE: Neurotoxic

⇒ Vinblastine SE: Bone Marrow Suppressants

Drugs Affecting Pyrimidine Metabolism

⇒ 5-Fluorouracil [5-FU] → Cause Hand and foot syndrome

Cytarabine Cause cerebellar side effects



29. Antidotes of drugs

Poisoning	Antidote
Ergot Alkaloids	⇒ Nitroprusside
Beta-blockers	⇒ Glucagon
Organophosphates, Carbamates	⇒ Atropine
Benzodiazepines, Z drugs	⇒ Flumazenil
Cyanide	⇒ Hydroxycobalamin (Vit B12) Amyl nitrite (inhalational) + Sodium Thiosulphate
Alcohol	⇒ Fomepizole
Iron	⇒ Desferrioxamine
Acetaminophen (Paracetamol)	⇒ N-acetylcysteine
Salicylates (Aspirin)	⇒ Forced Alkaline diuresis
Isoniazid	⇒ Pyridoxine (Vit B6)
Opioids	⇒ Naloxone
Scorpion sting	⇒ Prazosin
Atropine	⇒ Physostigmine
Physostigmine, Belladonna, Datura	⇒ Atropine
Xa inhibitors (xaban)	⇒ Andexanet α
Dabigatran	⇒ Idarucizumab
Heparin	⇒ Protamine sulphate
Cyclophosphamide (H'gic cystitis)	⇒ MESNA
Cisplatin	⇒ Amifostine
Anthracyclines (Doxo/Daunorubicin)	⇒ Dexrazoxane
Methotrexate	⇒ Folinic acid (Leucovorin)

30. DOC of Drugs

Condition	DOC
Acute bronchial asthma	Salbutamol / ics+formeterol
Acute gout	Nsaids [except aspirin]
Acute severe digitalis toxicity	Digibind
Acute severe migraine	Sumatriptan
Adhd	Methylphenidate
Alzheimer's disease	Donepezil/rivastigmine/gallantamine
Anaphylactic shock	Adrenaline (0.5 ml of 1:1000 conc i.m)
Anti-thyroid in pregnancy	Propylthiouracil ✓
Wide-spectrum antiepileptic	Valproate
Bipolar disorder (Prophylaxis)	Lithium
Brucella	→ Doxycycline + rifampicin ✓
Cheese reaction	Phentolamine/ tolazoline
Chemotherapy induced vomiting	Palonosetron
Clonidine (rebound hypertension)	Phentolamine
Cytomegalovirus (CMV)	→ Ganciclovir .
Depression and Neuroses	Ssri like fluoxetine
Diabetes insipidus	→ Desmopressin
Central	
- Nephrogenic	→ Thiazides
- Lithium-Induced	→ Amiloride .
Diabetes mellitus	
- Type 1	→ Insulin
- Type 2	→ Metformin (OHA) .
- Ketoacidosis	→ Regular insulin + iv fluids
- Pregnancy	→ Insulin
Dmard	Methotrexate
Drug induced Parkinsonism	→ Benhexol (trihexyphenidil)
Enteric fever (typhoid)	→ Ceftriaxone, others: cefixime, ciprofloxacin
Fibrinolytics overdose	→ EACA/Tranexemic acid .
Platyhelminths (cestodes & trematodes)	→ Praziquantel
Nematodes	→ Albendazole
Giardiasis/amoebiasis/trichomoniasis	→ Metronidazole
Herpes simplex	→ Valacyclovir/acyclovir
Hypertension in pregnancy	→ Alpha-methyldopa/labetalol (doc)
Hypertensive emergencies in pregnancy	→ Labetalol (doc)
Hypertensive emergencies	→ Nicardipine .
Oag	Latanoprost
Post-menopausal osteoporosis	Bisphosphonates (alendronate)
Post prandial hyperglycemia	Nateglinide ✓
Shock (Cardiogenic) with oliguria	→ DOPAMINE (Medium dose)
Steroid induced osteoporosis	→ Bisphosphonates (alendronate)
Surgical prophylaxis	→ Cefazolin .

Hypothyroidism	Levo-thyroxine
Hyperthyroidism	Methimazole/carbimazole → 1st trim: PTU → 2nd & 3rd trim: methimazole/carbimazole
Syphilis	→ Benzathine penicillin G
Termination of PSVT	→ Adenosine
Toxoplasmosis in pregnancy	→ Spiramycin
Treatment of PDA	→ Ibuprofen, indomethacin
Trigeminal neuralgia	→ Carbamazepine ✓
Hypertriglyceridemia	→ Fibrates ✓
Infantile spasms	→ Acth ✓
Kala azar	→ Liposomal amphotericin B
Mucormycosis	
Malignant hyperthermia	→ Dantrolene ✓
Neurolept malignant syndrome	
Mydriatic in adults	→ Tropicamide ✓
Mydriatic in children	→ Atropine
OHA in obese patients	→ Metformin ✓
Influenza A [H5N1 and H1N1]	→ Oseltamivir
P/o malaria Rx	→ Doxycycline (short stay) / mefloquine (longer stay) → North-east states: artemether+lumefantrine ✓ Rest of india: <u>APL</u> → artesunate+sulfadoxine/pyrimethamine
Plague	→ Doxycycline (px), strepto/gentamycin (rx)
P/O Pneumocystis jiroveci pneumonia	→ Cotrimoxazole
P/O Rheumatic fever	→ Benzathine penicillin ✓
P/O Whooping cough	→ Macrolides (erythromycin) ✓
Partial/Focal seizures	→ Carbamazepine ✓
Performance anxiety	→ Propanolol (migrano prep)

Extra Edge ;

Receptors

1. Ionotropic (Fastest) → GABAA, NMDA, NN, NM, 5HT3
2. Tyrosine Kinase receptors → Prolactin, Insulin, GH
3. Intracellular
 - A. Cytoplasmic → Vit D, Glucocorticoids, Mineralocorticoids
 - B. Nuclear → Vit A, Thyroid hormones, Sex hormones
4. GPCR others

Benign Prostatic Hyperplasia: (BPH)

α1A blockers- Tamsulosin* Stops the dynamic component

5-α reductase inhibitors: Finasteride* Stops the conversion of Testosterone to DHT stops the growth of Prostate. (Static Component).

Blood:

RBC → Erythropoietin

Darbopoietin Anemia due to chronic renal failure

WBC → Leukopenia due to bone marrow suppression

G-CSF → Filgrastim

GM-CSF → Sargramostim

Platelets → IL-11 → Oprelvekin

TUBERCULOSIS → FIRST LINE DRUGS

H → Isoniazid → ib thead

R → Rifampicin → red colored secretions / tears

Z → Pyrazinamide

E → Ethambutol (red-green color blindness (optic neuritis))

New drugs:

1. Bedaquiline ✓ dQT prolongation

2. Delamanid ✓

3. Pretomanid ✓

For TB with HIV

-- First start treatment of TB (ATT)

-- After 2 weeks, start treatment of HIV (ART)

HIV, TB ✓

Treatment of HIV HAART (Highly Active Anti Retro Viral Therapy)

All HIV positive for life long

First line therapy is

-2 NRTI +1 NNRT / integrase Inhibitors

-Commonly used - T + L + E or T + L + DQ

[T - Tenofovir, L - Lamivudine, E - Efavirenz, D - Dolutegravir]

Post exposure prophylaxis start within 72 hours for 28 days (4 wks)

Tenofovir + Lamivudine + Protease Inhibitors (or integrase inhibitors)

Artemisinin Combination Therapy [ACT] → Malaria

Lumefantrine + Artemether: DOC in North Eastern States

Artesunate + Sulfadoxine - Pyrimethamine: DOC for rest of India



**SELF-BELIEF
AND HARD
WORK WILL
ALWAYS EARN
YOU SUCCESS.**