

Pharmacology

Topper's  
Scribble  
Notes



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## **ABBREVIATION**

Q = Previous year question

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<u>Digoxin induced</u>	<u>RX</u>
ATRIAL TACHYCARDIA	Propranolol
AV BLOCK	Atropine
VENTRICULAR TACHYCARDIA	Lignocaine

CCF RX	
Controlling symptoms	<u>Controlling MORTALITY</u>
Loop diuretic	SPIRONOLACTONE
Nitrates, Nesiritide	ISOSORBIDE DINITRATE + HYDRALAZINE
Digoxin, PDE3-	ACE- , ARB , ALISKIREN , B Blockers

BLOOD

- TENECTAPLASE = LONGEST ACTING
- ALFIMEPRASE = SNAKE
- DESMOTEPHALASE = BAT
- DOC FOR TPA INDUCED BLEEDING = EACA
- APROTININ = USED FOR CARDIAC SURGERY

- WARF : FACTOR 2 IS LAST TO BE INHIBITED
- PURPLE TOE SX = WARFARIN
- WARF DOESNT REQUIRE TDM

DVT , PE	2 - 3 INR
Prosthetic valve	2.5 to 3.5

- ANTIDOTE OF WARFARIN = VIT K1 (PHYTONADIONE)

Warf toxicity	
INR >3	STOP , RESTART WHEN NORMAL
INR >10	ORAL VIT K , STOP
ANY SYMPTOMATIC PT	FFP + <b>INJ</b> VIT K

Prophylaxis of thrombus	
NON VALVULAR AF	Dabigatran
VALVULAR AF	Warfarin

- 2a / Xa inhibitor NOT USED IN VALVE PROBLEMS

For DVT	
Apixaban or Rivaroxaban	From 1st day onward
Dabigatran/ edoxaban	+ LMWH/FONDA x 5d first..fb it alone

- FONDAPARINEUX, LEPIRUDIN , ARGATROBAN MAY BE USED IN HIT. DOC FOR HIT = **ARGATROBAN (INJECTABLE MONOVALENT 2a -)**
- **HEPARIN IS SAFE IN RENAL FAILURE** whereas **LMWH AND FONDA, LEPIRUDIN** ARE EXCRETED UNCHANGED THROUGH KIDNEY, SO **UNSAFE** IN RENAL FAILURE

Direct thrombin inhibitors	<b>ORAL</b>
	Dabigatran
	Ximelagatran
	<b>INJECTABLE</b>

<u>Monovalent</u>	ARGATROBAN .MELAGATRAN
<u>Bivalent</u>	HIRUDIN
	Bivalirudin (SYNTHETIC)
	Lepirudin (CI IN RENAL FAILURE)
	Desirudin

- INJECTABLE Xa inhibitor = OTAMIXABAN
- Warfarin has URTICARIA as SE
- **Heparin** Causes Rashes and **HYPERKALEMIA**
- **1mg PROTAMINE NEUTRALISES 100U HEPARIN**
- LMWH MONITORING USING ANTIFACTOR 10A , IN RENAL FAILURE AND SEVERE OBESITY
- THROMBOXANE SYNTHWSE - BY DEZOXIBE

#### TXA2 RECEPTOR BLOCKER

- ALL TROBANS(DALTROBAN, SULTROBAN ETC) **EXCEPT ARGATROBAN**
- LOSARTAN
- VAPIPROST ( NOT A PROSTAGLANDIN)
- THROMBIXANE A2 BLOCKER ALSO USED FOR BRONCHIAL ASTHMA = **SERATRODAST**

Prodrugs	TICLOPIDINE
	CLOPIDOGREL
	PRASUGREL

- PRASUGREL HAS HIGH RISK OF BLEEDING SINCE IT IS THE MOST EFFECTIVE AND FASTEST ACTING

AGENT, SO NOT USED

- TICLOPIDINE IS TOXIC

- **TICAGRELORAL** = ORAL

- **CANNULAGRELOR** = IV

- CANGRELOR = ADENOSINE ANALOGUE

- ABCIXIMAB = MAXIMUM BLEEDING SINCE MOST EFFECTIVE GP2/3A-

## CHOLESTEROL

- BEZAFIBRATE = NO MYOPATHY

- FIBRATES DOC FOR CHYLOMICRONEMIA SX, T3 HYPERLIPOPROTEINEMIA, HYPERTRIGLYCERIDEMIA

- LOVA STATIN AND SIMVA STATIN ARE PRODRUGS

- PRAVASTATIN CAN BE GIVEN IN 8-10YR CHILD, LEAST MYOPATHY, LEAST INTERREFERENCE WITH FOOD, LEAST DRUG INTERACTION

- ROSES LAST FOR 19HRS = LONGEST ACTING

- **PITAVASTATIN** = MOST POTENT

- FLUVASTATIN = ALMOST COMPLETELY ABSORBED ( FULLA STATIN)

- MYOPATHY RX = COENZYME Q

- TERATOGENIC

- **PREGNANT PT** = GIVE CHOLESEVELAM = ALSO RX OF DM

- APIRIN + NIACIN = NO FLUSHING

- MIPOMERSEN = ANTISENSE OLIGONUCLEOTIDE INHIBITOR OF APOLIPOPROTEIN B

- AVASIMIBE - CONVERSION OF CHOLESTEROL TO CHOLESTEROL ESTER

# ANTICANCR DRUGS

G1 PHASE	L asparaginase, STEROIDS
S PHASE	Purine , Pyrimidine, antifolates, Topoisomerase 2 inhibitors (epipodophyllotoxins- etoposide)
G2 PHASE	Topoisomerase 1 x ( CAMP) - irinotecan , BLEOMYCIN
M PHASE	VINCA(- Polymerisation), TAXANES(- disassembly)

- Bleomycin is the only antibiotic anti cancer cell cycle specific agent

ANTIMETABOLITES ON S PHASE		
<b>ANTIFOLATE</b>	<b>PURINE</b>	<b>PYRIMIDINE</b>
METHOTREXATE	6 MP, 6TG	CYTARABINE
PEMETREXED	FLUDRABINE(DOC FOR CLL)	5FU ( excreted as CO <sub>2</sub> by lungs)
PRALATREXATE	CLADRBINE(DOC FOR HCL)	CAPECITABINE
	PENTOSTATIN	GEMCITABINE

\*METHOTREXATE POLYGLUTAMIDE IS THE ACTIVE FORM, IT IS EFFLUXED BY P GLYCOPROTEIN

- INHIBITION OF ADENOSINE DEAMINASE = PENTOSTATIN
- 6 MP IS A PRODRUG THAT REQUIRES HGPRTASE
- IF ALLOPURINOL IS USED ALONG WITH 6MP , TOXICITY OCCURS, SINCE 6MP REQUIRES XANTHINE OXIDASE TO GET INACTIVATED**
- MINIMUM DOSE OF METHOTREXATE = 7.5mg/Week

Hand foot syndrome	CAPECITABINE
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- ACTINOMYCIN D = RADIATION RECALL SYNDROME
- MITHRAMYCIN/PLICAMYCIN = USEFUL FOR HYPERCALCEMIA
- DOXORUBICIN = DOSE DEPENDENT CARDIOMYOPATHY (>550mg/m<sup>2</sup>)
- Bleomycin metabolised by hydrolase

NOT CAUSING SIGNIFICANT MYELOSUPPRESSION	
	VINCRISTINE
	BLEOMYCIN
	L ASPARAGINASE

- ALKYLATING AGENT ALKYLATES N7 GUANINE IN DNA

<b><u>ALKYLATING AGENTS</u></b>	
BUSULPHAN	Venocclusive disease
NITROSOUREAS = Lomustine , carmustine	Sustained neutropenia
STREPTOZOCIN	Chemical pancreatectomy
CHLORAMBUCIL	
CYCLOPHOSPHAMIDE	Least myelosuppression
Melphalan	Max secondary cancer with procarbazine and melphalan
<b>PROCARBAZINE</b>	<b>DISULFIRAM RN , MAX 2ry CANCER, MAO INHIBITOR, CHEESE REACTION</b>
DACARBAZINE (on RNA)	ACTS ON RNA
THIOTEPA	
MECHLORETHAMINE	SKIN VESICANT ; RX = THIOSULPHATE
TEMOZOLOLAMIDE	100% ORAL BIOAVAILABILITY
CISPLATIN, CARBOPLATIN	

<b>Skin vesicants</b>	<b>RX</b>
MECHLORETHAMINE	Thiosulphate
VINCRISTINE	HYALURONIC acid
DOXORUBICIN	Dexrazoxane

- CYCLOPHOSPHAMIDE IS A PRODRUG , ACTIVE FORM IS ALDO PHOSPHAMIDE
- DOC FOR PANCREATIC CANCER = GEMCITABINE
- PONATINIB = 3RD GEN ( T315 MUTANT CASES)
- VEGFR BLOCKERS PRODUCE HYPERTENSION

Rituximab uses

- CLL
- HEMOLYTIC ANEMIA
- ITP
- NHL
- RHEUMATOID ARTHRITIS

Ibritumomab	Yttrium 90
Tositumomab	I 131

- DRUGS FOR HEMORRHAGIC CYSTITIS = CARBOPROST, **FORMALIN**, NAC , MESNA
- CISPLATIN = COASTING EFFECT NEUROPATHY = PROGRESSES EVEN AFTER TREATMENT COMPLETION

- CISPLATIN NEPHROTOXICITY = AMIFOSTINE
- CARBOPLATIN = **MAXIMUM** MYELOSUPPRESSION
- OXALIPLATIN= LARYNGOPHARYNGEAL PARASTHESIA

M phase

- **AMONG ALL ANTICANCER DRUGS , MAXIMUM PERIPHERAL NEUROPATHY IS BY VINCRISTINE**

\*RALOXIFEN CAN BE USED FOR OSTEOPOROSIS

Chemical ADRENALECTOMY	AMINOGLUTETHIMIDE
Chemical pancreatectomy	STREPTOZOCIN

- OS PEMIFENE = RX OF DYSPAREUNIA

SPRM	ULIPRISTAL
	ASOPRISNIL
	TELAPRISTONE = Endometrosis, Fibroid Uterus

- THALIDOMIDE USED FOR RX OF APHTHOUS ULCER IN HIV PATIENTS
- R ISOMER CAUSES TERATOGENICITY AND THERAPEUTIC ABILITY
- S ISOMER = SEDATION
- adr of thalidomide = **CONSTIPATION, SENSORY NEUROPATHY**

- EPO RECEPTOR STIMULANT = **PEG IN ESATIDE**
- THROMBOPOEITIN RECEPTOR AGONIST = ELTROMBOPAG, ROMIPLOSTIM

Most emetogenic	CISPLATIN
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Ondansetron	Mc side effect = HEADACHE
GRANisetron	Transdermal
DOLasetron	Qt prolongn. Therefore not used in prophylaxis of n and v
<b>PALONosetron</b>	<b>No qt prolongn , HIGHLY SELECTIVE BLOCK, MAX POTENCY, LONGEST ACTING</b>

- AIDS asso Anorexia and wt loss = DRONABINOL
- DELAYED PHASE VOMITING OF CISPLATIN = BEST : APREPITANT
- HERIDITARY ANGIOEDEMA = DOC BEFORE SX = EACA

Tacrolimus	Cyclosporine
MAX NEPHROTOXICITY	Hyperuricemia
HYPERKALEMIA	Hyperlipidemia
Hyperglycaemia	Hirsutism Gum hyperplasia

- CISPLATIN, AMPHOT B = HYPOKALEMIA
- CYCLOSPORINE = HYPERKALEMIA
- \* SIROLIMUS = HUS, ORAL ULCER
- Azathioprine converted by XANTHINE OXIDASE TO 6MP (ACTIVE FORM IS 6THIOSINIC ACID)
- MMF = IMPDH - , GI TOXICITY
- IL 17R BLOCKER = BRODALUMAB

More than just notes...

- SECUKINUMAB = IL 17A
- IL 23 = TILDRAKIZUMAB, GUSELKUMAB
- USTEKINUMAB = IL 12 AND IL 23

Ifn a	Antiviral
Ifn b	Multiple Sclerosis
ifn g	CGD

- LEVAMISOLE = IMMUNOSTIMULANT @ LOW DOSES
- RESIQUIMOD = HSV
- ALEFACEPT = PSORIASIS
- LEFLUONAMIDE = -DHODH
- MTx + LEFLUONAMIDE = severe hepatotoxic

## GOUT

- COLCHICINE = BLOODY DIARRHOEA
- ALLOPURINOL = HLA B5801, ALLERGY THEN USE OXYPURINOL

## URIC ACID EXCRETORS =

- PROBENECID
- SULFINPYRAZONE
- **BENZBROMARONE (EFFECTIVE EVEN IN RENAL FAILURE)**
- LESINURAD (urate Transporter inhibitor)
- LOSARTAN

## INCREASED METABOLISM OF URIC ACID (URICASE)

- RASBURICASE
- PEGLOTICASE (USED IN CC GOUT NOT RESPONDING TO ALLOPURINOL)

## ANTI HISTAMINES

PROMETHAZINE	Hypotension (alpha 2 -)
CYPROHEPTADINE(migraine prophylaxis, Serotonin sx, Appetizer)	H1 , 5HT3 BLOCK + ANTICHOLINERGIC

- H3 receptor is presynaptic
- BZD : W1 RECEPTOR = SEDATION, ALL OTHER ACTIONS W2
- **ZALEPLON = SHORTEST ACTING**
- ZOLPIDEM = M/C
- BICUCULIN = GABA R COMPETITIVE ANTAGONIST, NON COMPETITIVE AT BZD
- phenytoin = S/E = RICKETS, PURPLE GLOVE SX, ARENEOXIDE IS THE TERATOGEN
- CARBEMAZEPINE IS DOC FOR TEMPORAL LOBE EPILEPSY

<u>Valproate</u>	<u>MoA</u>
	Na channel block
	T type Ca channel block
	ANTI NMDA
	GABA AGONIST

- CARBEMAZEPINE IS AN **AUTOINDUCER**
- CARNITINE USED TO CONTROL **HEPATOTOXICITY OF VALPROATE**

- LEVATIRACETAM = NO DRUG INTERACTION
- CA INHIBITOR = CAUSE URINARY STONES = TOPIRATE, ZONISAMIDE
- K CHANNEL OPENER = RETIGABINE, EZOGABINE
- ANTI EPILEPTICS CAUSING WEIGHT GAIN = GABAPENTIN , VALPROATE

## OPIOIDS

- CONSTIPATION, ANALGESIA = ALL RECEPTORS

<u>MU</u>	
MOYSIS	Urine retention
MUSCLE RIGIDITY	eUphoria
MOTILITY DECR	Resp depression
SPHINCTER CONTRACTION LEADING TO CONSTIPN	

D = ENKEPHALIN ,

- DYNORPHIN = KAPPA ( DYSPHORIA , DIURESIS, SEDATION)
- MORPHINE = RELEASES HISTAMINE, VASODILATATION( SO USED TO TREAT PULM EDEMA)
- CYP2D6
- CODEIEN = METHYL MORPHINE

- SEMISYNTETIC = APOMORPHINE, PHOLCODEINE, DAM (HEROIN)
- PETHIDINE IS C/I FOR RENAL FAILURE
- METHADONE = NMDA BLOCK, -REUPTAKE OF SER/NE , ORAL:PARENTRAL = 2:1 , ASSO WITH QT PROLONGATION

u antagonist , K agonist

u agonist, k antagonist

Only Analgesia, no side effects	Happiness
NALORPHINE	Buprenorphine
PENTAZOCINE	
BUTORPHANOL (blocks u vasodilation)	

- CC ALVIMOPEN USE LEADS TO = MI
- NALFURAFINE = PERIPHERAL K ANTAGONIST, RX OF PRURITIS IN CKD

## ANTIBIOTICS

CYCLOSERINE = ALANINE LIGASE / RACEMASE

FOSFOMYCIN = ENOL PYRUVATE TRANSFERASE

BACITRACIN = DEPHOSPHORYLATION OF BACTOPRENOL

VANCOMYCIN = TRANSGLYCOSYLSE

Aminoglycoside	Inhibits initiation complex , Mis reading of mRNA
Tetracycline	tRNA to A SITE ON 30S
LINEZOLID	Initiation -
CHLORAMPHENICOL	TRANSPEPTIDASE -
MACROLIDES, LINCOSAMIDES,STREPTOGRAMMINS	Translocation-

- VRSA DOC = DAPTOXYCIN
- MLS RESISTANCE = DUE TO METHYLATION @ 50S RIBOSOME
- CHLORAMPHENICOL RÉSISTANCE = ENZYME DEGRADATION BY ACETYL TRANSFERASE

- AMINOGLYCOSIDES = ENZYMIC DEGRADATION
- STREPTOMYCIN = ALTERED RIBOSOME STR
- Amikacin and Neomycin = NOT DEVELOPED RESISTANCE

- CEFOPERAZONE CAUSES BLEEDING, DISULFIRAM LIKE REACTION
- Emergency contraceptive: MIFEPRISTONE 10mg single dose
- INDOMETHACIN CAUSES DIZZINESS IN DRIVERS
- DRUG OF CHOICE FOR ACUTE GOUT IS INDOMETHACIN
- PCM ACTS ON COX 3 IN BRAIN
- PCM GETS INACTIVATED BY PEROXIDASES, LACKS ANTIINFAMATORY ACTION
- **CANAGLIFOZIN** = ASSO WITH OSTEOPOROSIS AND BLADDER CANCER
- SIROLIMUS BLOCKS ACTION OF IL 2 (THUS CAUSES BONE MARROW SUPPRESSION)
- NAFCILLIN = NEUTROPENIA
- DOC FOR ESBL = CARBAPENEMS
- VANCOMYCIN NOT EFFECTIVE AGAINST PSEUDOMONAS

*More than just notes...*

## 4. Ethambutol

## SOLUTION

Bacteria	Present in	Most effective drug
Fast growing	Wall of TB cavity	Isoniazid
Spurters	Caseous necrosis	Rifampicin
Slow growing	Inside macrophages	Pyrazinamide

## REFERENCE

KDT 8e/pg-818

← PREV



- MOTHERS WITH PREVIOUS EXPOSURE TO NVP = GIVE ZIDOVUDINE

- FOSCARNET = EFFECTIVE AGAINST HSV, CMV, HERPES, HIV
- CIDOFOVIR = HSV, CMV, POX, ADENOVIRUS
- TIGECYCLINE = VIA LIVER (BILE) EXCRETION
- TYPHOID = AMINOGLYCOSIDES ARE NOT EFFECTIVE
- DOC FOR CRYPTOCOCCUS = FLUCANAZOLE (CHECK)
- CUTANEOUS LEISHMANIASIS = SODIUM STIBOGLUCONATE
  
- DPP 4 INHIBITORS ARE CONTRAINDICATED IN RENAL FAILURE EXCEPT **LINAGLIPTIN (SAFE IN RENAL FAILURE)**
- DPP 4 RESEMBLES CD 26. THEREFORE INHIBITION CAUSES URTI
  
- Adverse effects of PPI = OSTEOPOROSIS, VIT B12 DEFICIT, PNEUMONIA, CARCINOID TUMOR (IN ANIMAL MODEL)
- DOC FOR ALL ULCERS INCLUDING NSAID INDUCED = PPI
- PEMBROLIZUMAB = HEAD AND NECK CANCER
- CETUXIMAB = HEAD AND NECK + CETUXIMAB

Ibs	
Constipation	LUBIPROSTONE, LINACLOTIDE
diarrhoea	LOPERAMIDE, ALOSETRON

- RX OF NEPHROGENIC DI = THIAZIDES
- RAPAGLINIDE USED ONLY FOR PP HYPERGLYCAEMIA
-