

PHARMACOLOGY MNEMONICS

for the
**FAMILY
NURSE
PRACTITIONER**

ILLUSTRATIONS BY MURHIEL CABERTE



N A C H O L E J O H N S O N

**Pharmacology
Mnemonics for the
Family Nurse
Practitioner**

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Illustrated by Murhiel Caberte

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Chapter 1

Why I Wrote This Book

There's a lot to learn while you are in nurse practitioner school. Because of the time pressure, I really appreciated anything that would help me get through school. I've always been a visual learner, and it is easy for me to pick up information if I draw out pictures or play with words to make learning a complex issue easier. I loved using mnemonics when I was in nursing school, and that continued when I went to graduate school for my Family Nurse Practitioner degree.

I found it was easy for me to remember silly sayings during the test that would remind me of the right answer. Turns out, many other people like mnemonics too! I decided to write a book specifically for the Nurse Practitioner field. *Pharmacology Mnemonics for the Nurse Practitioner* is a general guide to pharmacology, meaning it will help you no matter your specialty. It is a bit of a cross between what you would expect from a book for nurses and one geared toward physicians.

Use this book as a guide to memorize common concepts and as a refresher for ones you haven't used in a while. Even when you are out of school and in practice, it is sometimes difficult to remember a concept you haven't used since the final exam. This is normal and happens to nurse practitioners and physicians alike. I still use silly mnemonics to remember things like the cranial nerves "**O**n **O**ld **O**lympus **T**owering **T**ops **A** **F**in **A**nd **G**erman **V**iewed **S**ome **H**ops," anyone?

Use this book while you are in school and as a refresher when you finish. I've included extras for Nurse Practitioners like common pharmacological abbreviations, medication classifications, and medication antidotes. Have fun, learn, and enjoy!

Nachole

Chapter 2

Pharmacology Pearls



Pharmacology Abbreviations

ā before

ac before meals

AD right ear

AS left ear

AU both ears

bid twice a day

ċ with

cap capsule

EC enteric-coated

elix elixir

h or hr hour

hs hour of sleep

IM intramuscular

IV intravenous

IVP intravenous push
NG nasogastric
npo nothing by mouth
OD right eye
oint ointment
os mouth
OTC over-the-counter
OS left eye
OU both eyes
-
p after
pc after meals
per by
po by mouth
pr per rectum
prn as needed
q every
q1h every 1 hour
q2h every 2 hours
q3h every 3 hours
q4h every 4 hours
q6h every 6 hours
q8h every 8 hours
qd every day
qh every hour
qid four times a day
-
s without

SL Sublingual
 SR sustained release
 supp suppository
 syr syrup
 tab tablet
 tid three times a day

Official "Do Not Use" List from JCAHO

| Do Not Use | Potential Problem | Use Instead |
|---|--|---|
| U, u (unit) | Mistaken for "0" (zero), the number "4" (four) or "cc" | Write "unit" |
| IU (international unit) | Mistaken for IV (intravenous) or the number 10 (ten) | Write "International Unit" |
| Q.D., QD, q.d. qd (daily) Q.O.D., QOD, q.o.d., qod (every other day) | Mistaken for each other Period over the Q mistaken for "I" and the "O" mistaken for "I" | Write "daily" Write "every other day" |
| Trailing zero (X.0 mg)* Lack of leading zero (.X mg) | Decimal point is missed | Write X mg Write 0.X mg |
| MS MSO4 and MgSO4 | Can mean morphine sulfate or magnesium sulfate Confused for one another | Write "morphine sulfate" Write "magnesium sulfate" |

www.jointcommission.org

Drug Administration Routes

| | |
|---|--|
| <p>Enteral <i>Oral, Sublingual, Buccal, Rectal</i></p> <p>Advantages: convenient, inexpensive, good absorption</p> <p>Disadvantages: Sometimes inefficient, 1st pass effect, irritates gastric mucosa, slow effect, unpleasant taste, can't use if unconscious</p> | <p>Parenteral <i>Intradermal, Subcutaneous, Intramuscular, Intravenous, Intraperitoneal, Intrathecal, Intraarticular, Intra arterial, Intra medullary</i></p> <p>Advantages: rapid, can be used for unconscious, avoid gastric irritation</p> <p>Disadvantages: must maintain asepsis, painful, expensive, possible nerve injury</p> |
| <p>Topical <i>Skin, Eye or ear, Nose and Lungs</i></p> <p>Advantages: high local concentration without systemic effect</p> <p>Disadvantages: slow onset, local reactions, limited to few drugs, systemic effect with tissue destruction</p> | <p>Inhalation <i>Through nose or mouth</i></p> <p>Advantages: rapid onset, large surface area for absorption</p> <p>Disadvantages: most addictive, hard to regulate dosage</p> |

| |
|--|
| Routes of Entry: |
| Most Rapid Ways Meds/Toxins Enter Body |
| “Stick it, Sniff it, Suck it, Soak it”: |
| Stick = I njection |
| Sniff = I nhalation |
| Suck = I ngestion |
| Soak = A bsorption |

Common Medication Classifications and Actions

Antacids- Reduce hydrochloric acid located in the stomach

Antianemics- Increases the production of red blood cells

Anticholinergics- Decreases oral secretions

Anticoagulants- Prevents the formation of clots

Anticonvulsants- Management of seizures or bipolar disorders

Antidiarrheals- Reduce water in bowels and gastric motility

Antihistamines- Block the release of histamine

Antihypertensives- Decreases blood pressure

Anti-infectives- To get rid of infections

Bronchodilators- Dilates the bronchi and bronchioles

Diuretics- Increase excretion of water/sodium from the body

Laxatives- Loosens stools and increases bowel movements

Miotics- Constricts pupils of the eye

Mydriatics- Dilates the pupils

Narcotics/analgesics- Relieves pain

Pharmacology Suffixes

- **-amil:** calcium channel blockers
 - **-caine:** local anesthetics
 - **-cycline:** antibiotics
 - **-dine:** anti-ulcer agents (H2 histamine blockers)
 - **-done:** opioid analgesics
 - **-ine:** antidepressants, calcium channel blockers
 - **-ide:** oral hypoglycemics
 - **-pam:** anti-anxiety agents
 - **-oxacin:** broad spectrum antibiotics
 - **-micin:** antibiotics
 - **-mide:** diuretics
 - **-mycin:** antibiotics
 - **-nuim:** neuromuscular blockers
 - **-olol:** beta blockers
 - **-pam:** anti-anxiety agents
 - **-pine:** calcium channel blockers
 - **-pril:** ace inhibitors
 - **-sone:** steroids
 - **-statin:** antihyperlipidemics
 - **-vir:** anti-virals
 - **-xacin:** antibiotics
 - **-zide:** diuretics
 - **-zine:** antipsychotics
-

Viral Drugs- "-vir at start, middle or end means virus": ·

Example Drugs:

| | |
|-------------|--------------|
| Abacavir | Norvir |
| Acyclovir | Oseltamivir |
| Amprenavir | Penciclovir |
| Cidofovir | Ritonavir |
| Denavir | Saquinavir |
| Efavirenz | Valacyclovir |
| Indavir | Viracept |
| Invirase | Viramune |
| Famvir | Zanamivir |
| Ganciclovir | Zovirax |

Medication Antidotes

| | |
|--------------------------|---|
| Alcohol Withdrawal | Librium |
| Anticholinergics | Physostigmine |
| Anticoagulants | Vitamin K, FFP |
| Asprin | Sodium bicarbonate |
| Benzodiazepines | Romazicon (Flumazenil) |
| Beta Blockers | Glucagon |
| CCB | Calcium, glucagon, insulin |
| Cholinergic Meds | Atropine, pralidoxime (2-PAM) |
| Coumadin | Vitamin K |
| Cyanide | Tyhydroxycobalamin, sodium thiosulfate |
| Digoxin | Digiband |
| Ethylene glycol | Fomepizole, ethanol |
| Heparin | Protamine Sulfate |
| Hydrofluoric acid | Calcium Gluconate |
| Insulin | Glucose |
| Isoniazid | Deferoxamine |
| Iron | Deferoxamine |
| Magnesium Sulfate | Calcium Gluconate |
| Methanol | Ethanol |
| Methemoglobin | Methylene blue |
| Methotrexate | Leucovorin |
| Opiates | Narcan |
| Tricyclic antidepressant | Sodium bicarbonate |
| Tylenol | Mucomyst |

Pharmacology Conversions

| Volume |
|---|
| 1 kiloliter = 1,000 liters = 1 cubic meter |
| 1 liter = 1,000 milliliters = 1,000 cc |
| 1 milliliter = 1 cc |
| 1 fluid ounce = 29.57 milliliters |
| 1 US gallon = 3.785 liters |
| 1 Imperial gallon = 4.546 liters |
| Weight |
| 1 kilogram = 1,000 grams = 2.2 pounds |
| 1 gram = 1,000 milligrams = 0.035 ounce |
| 1 milligram = 1,000 micrograms = 1/1,000 gram |
| 1 microgram = 10^{-6} grams = 1/1,000 milligram |
| 1 pound = 0.45 kilogram = 16 ounces |
| 1 ounce = 28.35 grams |

Additional Conversions:

$$2.2 \text{ lbs} = 1 \text{ kg}$$

$$15 \text{ gr} = 1 \text{ g} = 1,000 \text{ mg}$$

$$1 \text{ gal} = 4 \text{ qt} = 128 \text{ oz} = 400 \text{ mL}$$

$$1 \text{ pt} = 16 \text{ oz} = 480 \text{ mL}$$

$$2 \text{ Tbsp} = 1 \text{ oz} = 8 \text{ dr} = 30 \text{ mL}$$

$$15 \text{ gtt} = 15 \text{ minum} = 1 \text{ mL} = 1 \text{ cc}$$

$$1 \text{ lb} = 16 \text{ oz}$$

$$1 \text{ gr} = 65 \text{ mg}$$

$$1 \text{ qt} = 2 \text{ pt}$$

$$1 \text{ L} = 1,000 \text{ mL}$$

$$1 \text{ cup} = 8 \text{ oz} = 240 \text{ mL}$$

$$1 \text{ tsp} = 60 \text{ gtt} \quad 1 \text{ dr} = 4 \text{ mL}$$

$$1 \text{ gtt} = 1 \text{ minim}$$

$$1 \text{ oz} = 30 \text{ g}$$

$$1 \text{ mg} = 1,000 \text{ mcg}$$

Therapeutic dosage: toxicity values for most commonly monitored medications

"The magic 2s":

Digitalis (.5-1.5) Toxicity = 2.

Lithium (.6-1.2) Toxicity = 2.

Theophylline (10-20) Toxicity = 20.

Dilantin (10-20) Toxicity = 20.

APAP (1-30) Toxicity = 200.

Chapter 3

Cardiology

ACE inhibitor side effects (CAPTOPRIL)

- Cough
- Angioedema
- Proteinuria
- Taste disturbance/ Teratogenic in 1st trimester
- Other (fatigue, headache)
- Potassium increased
- Renal impairment
- Itch
- Low BP (1st dose)

Alternative - CRAP PILOT

Cough

Renal impairment

Anaphylaxis

Palpitations

Potassium elevated

Impotence

Leukocytosis

Orthostatic hypotension

Taste

| |
|---|
| <p>Beta blockers: B1 selective vs. B1-B2 non-selective</p> |
| <p><i>A through N: B1 selective:</i> Acebutalol, Atenolol, Esmolol, Metoprolol.</p> |
| <p><i>O through Z: B1, B2 non-selective:</i> Pindolol, Propranolol, Timolol.</p> |

Beta-1 vs. Beta-2 receptor location
 "You have 1 heart and 2 lungs":
 Beta-1 acts primarily on heart.

| | |
|---|---|
| <p>Beta 1 selective blockers</p> | |
|  <p>"BEAM me up, Scotty!"</p> | <p>Beta 1 blockers: Esmolol Atenolol Metoprolol</p> |

Beta-blockers:
Nonselective Beta-blockers:

“Tim Pinches His Nasal Problem”
(because he has a runny nose...):



Timolol
Pindolol
Hismolol
Naldolol
Propranolol

Beta-blockers: Side effects
“BBC Loses Viewers In Rochedale”:



Bradycardia

Bronchoconstriction

Claudication

Lipids

Vivid dreams & nightmares

Inotropic action

Reduced sensitivity to hypoglycemia

Ca⁺⁺ Channel Blockers: Uses- CA⁺⁺ MASH:

| |
|------------------------------|
| Cerebral vasospasm/ CHF |
| Angina |
| Migraines |
| Atrial flutter, fibrillation |
| Supraventricular tachycardia |
| Hypertension |

Alternatively: "CHASM":

| |
|--|
| Cerebral vasospasm / CHF |
| Hypertension |
| Angina / Atrial flutter, fibrillation |
| Supraventricular tachyarrhythmia |
| Migraines |

Antiarrhythmic: Classification

I to IV MBA College

In order of class I to IV:

| |
|---|
| Membrane stabilizers (class I) |
| Beta blockers (class II) |
| Action potential widening agents (class III) |
| Calcium channel blockers (class IV) |

Amiodarone: Action, Side Effects 6

P's:

Prolongs action potential duration

Photosensitivity

Pigmentation of skin

Peripheral neuropathy

Pulmonary alveolitis and fibrosis

Peripheral conversion of T4 to T3 is inhibited -> hypothyroidism

Direct sympathomimetic catecholamines DINED:

| D | I | N | E | D |
|---------------------------------|--|---|--|---|
| O P A M I N E | S O P R O T E R E N O L | O R E P I N E P H R I N E | P I N E P H R I N E | O B U T A M I N E |

Atrial arrhythmias "ABCDE"

| A | B | C | D | E |
|---|---|---|---------------------------------|---|
| N T I C O A G U L A N T S | E T A B L O C K E R S | A L C I U M C H A N N E L B L O C K E R S | D I G O X I N | L E C T R O C A R D I O V E R S I O N |

Chapter 4 Pulmonary

Pulmonary Infiltrations Inducing Drugs "Go BAN Me!"

| |
|--|
| Gold |
| Bleomycin/ Busulfan/ BiCNU Amiodarone/ Acyclovir/ Azathioprine Nitrofurantoin |
| Melphalan/Methotrexate/Methysergide |

Antibiotics for TB

STRIPE:

| | | | | |
|---|---|-------------------|----------------------|--------------------|
| ST R E P T O M Y C I N | R I F A M P I C I N | I SONIAZID | P YRAZINAMIDE | E THAMBUTOL |
|---|---|-------------------|----------------------|--------------------|

Alternatively, **RESPI**ration

Rifampicin

Ethambutol

Streptomycin

Pyrazinamide

Isoniazid

Asthma Drugs: Leukotriene Inhibitor Action



zAfirlukast: Antagonist of lipoxygenase

zIlueton: Inhibitor of LT receptor

Zafirlukast, Montelukast, Cinalukast: Mechanism & Usage

"Zafir-**luk**-ast, Monte-**luk**-ast, Cina-**luk**-ast": Anti-**Leuk**otrienes for Asthma.

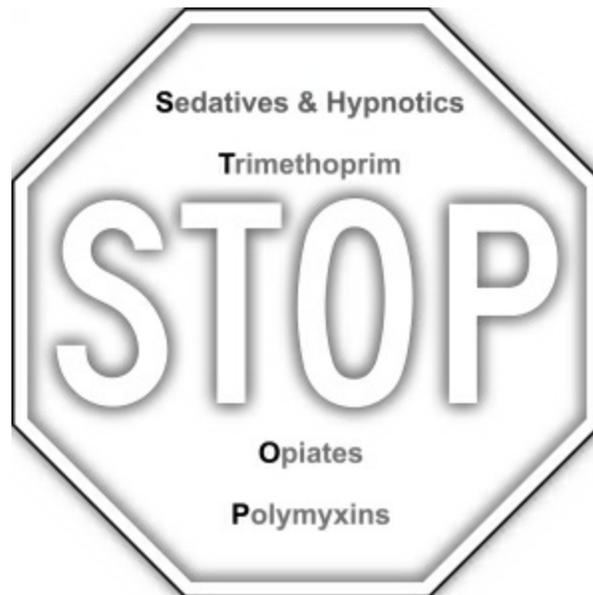
Clinical pearl: Zafirlukast antagonizes leukotriene-4.

Medicines for Asthma

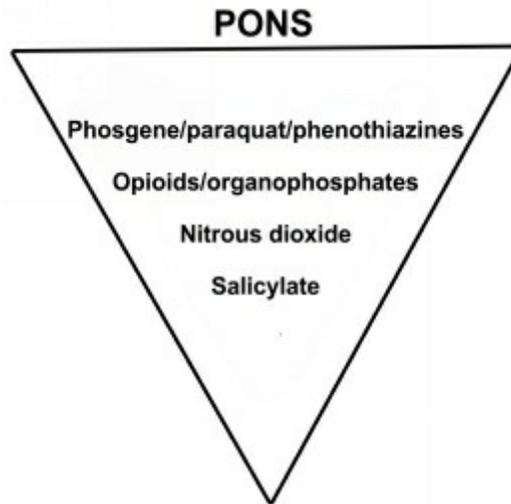
| |
|---|
| A gonist of beta receptors and Antagonist of leukotriene |
| S teroids |
| T heophylline – relaxes bronchial muscles |
| H istamine antagonist as prophylactic |
| M ucolytics – acetylcysteine (Fluimucil) |
| A ntibiotics |

IprAtropium action: *Atropine* is buried in the middle, so it behaves like Atropine.

Respiratory depression inducing drugs "STOP breathing":



Non-Cardiac Causes of Pulmonary Edema: PONS



Pulmonary edema “MAD DOG”

| | |
|---|---------------|
|  | Morphine |
| | Aminophylline |
| | Digitalis |
| | Diuretics |
| | Oxygen |
| | Gases |

Chapter 5
Antibiotics/Antivirals

Sulfonamide: Major Side Effects....SSSS



| |
|--|
| Steven-Johnson syndrome |
| Skin rash |
| Solubility low (causes crystalluria) |
| Serum albumin displaced (Causes newborn kernicterus and potentiation of other serum albumin- binders like warfarin) |

**Quinolones [and Fluoroquinolones]:
mechanism**

"Topple the Queen":



Quinolone interferes with Topoisomerase II.

Nitrofurantoin: Major Side Effects NitroFurAntoin:

Neuropathy (peripheral neuropathy)

Fibrosis (pulmonary fibrosis)

Anemia (hemolytic anemia)

Antibiotics Contraindicated During Pregnancy MCAT:

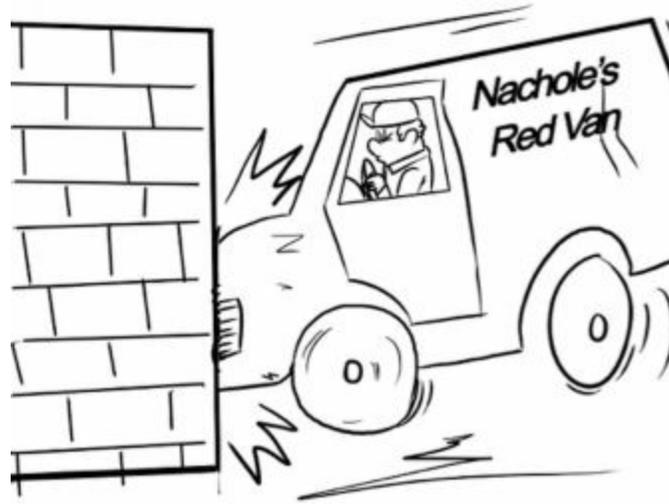


Metronidazole
Chloramphenicol
Aminoglycoside
Tetracycline

Tetracycline: Teratogenicity

Tetracycline is a **T**eratogen that causes staining of **T**Eeth in the newborn.

Vancomycin - "A Red Van Drove Into The Wall"



Antihistamines (prevents red man syndrome)

Red man syndrome

Vancomycin

DAla DAla (terminal end of pentapeptide)

Inhibitor

Thrombophlebitis

Wall (cell wall)

Amphotericin Toxicities: AMPHOTERICIN B

Anemia

Muscle spasms

Phlebitis

Headaches/**H**ypotension/**H**ypokalemia

Other reactions (leukopenia, Increased LFT's)

Thrombocytopenia

Emesis/**E**ncephalopathy

Respiratory stridor

Increased temperature (fever)

Chills

ImmEDIATE hypersensitivity (anaphylaxis)

Nephrotoxicity

Bronchospasm

Anti AnXIety = BuXpirone

Bu**PROPER**ion = **PROPER** habits (no smoking)

It's used for smoking *cessation*.

The Use Of Propranolol For PERFORMANCE ANXIETY.

Take pr**OPRA**-nolol if you wanna talk to **OPRAh!!!**



Propranolol is the beta-blocker with the strongest sedation effect. Just thinking of talking to Oprah can cause migraines, essential tremors and arrhythmias (the other 3 uses of the drug).

Delirium-Causing Drugs

ACUTE CHANGE IN MS:

Antibiotics (biaxin, penicillin, ciprofloxacin)

Cardiac drugs (digoxin, lidocaine)

Urinary incontinence drugs (anticholinergics)

Theophylline

Ethanol

Corticosteroids

H2 blockers

Antiparkinsonian drugs

Narcotics (esp. meperidine)

Geriatric psychiatric drugs

ENT drugs

Insomnia drugs

NSAIDs (e.g. indomethacin, naproxen)

Muscle relaxants

Seizure medicines

Tricyclic Antidepressants: Meds Worth Knowing



"I have to hide, the CIA is after me":
Clomipramine Imipramine Amitriptyline

• **The next 3 worth knowing,**
"The DND is also after me":
Desipramine Nortriptyline Doxepin

Serotonin Syndrome: Components Causes HARM:

Hyperthermia,
Autonomic Instability (delirium)
Rigidity
Myoclonus

SSRIs: Side Effects SSRI:

Serotonin syndrome
Stimulate CNS
Reproductive dysfunction in male

Insomnia

Depression: 5 Drugs Causing It: PROMS



| PROPRANOLOL | RESERPINE | ORAL CONTRACEPT IVES |
|--------------------|------------------|-------------------------------------|
| | | |

Benzodiazapines

Benzodiazapines: Those not metabolized by the liver (safe to use in liver failure)

LOT: Lorazepam Oxazepam Temazepam



Benzodiazepines: Actions

"Ben **SCAMs** Pam into seduction not by brain but, by muscle":



Sedation

anti-Convulsant

anti-Anxiety

Muscle relaxant

Not by brain: No antipsychotic activity

Benzodiazepines: Drugs Which Decrease Their Metabolism

"I'm Overly Calm":

Isoniazid

Oral contraceptive pills

Cimetidine

These drugs increase the calming effect of BZDs by retarding metabolism.

Benzodiazepines: Antidote "Ben is off with the Flu":

Benzodiazepine effects off with Flumazenil.

MAOIs: Indications MAOI'S:

Melancholic [classic name for atypical depression]

Anxiety

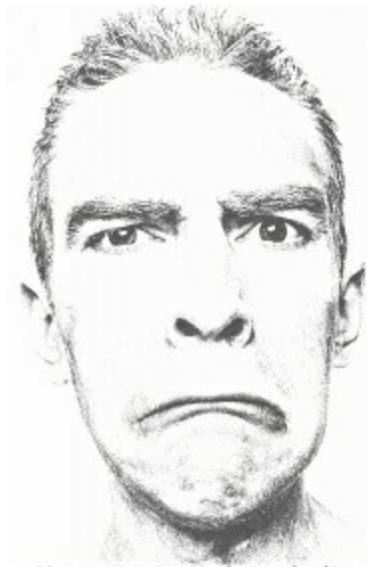
Obesity disorders [anorexia, bulimia]

Imagined illnesses [hypochondria]

Social phobias

* Listed in decreasing order of importance.

· Note **MAOI** is inside **MelAnchOIc**



My name is Mel Ancholic.

Monoamine Oxidase Inhibitors:

Members "**PIT** of despair":

Phenelzine

Isocarboxazid

Tranylcypramine

A **PIT** of despair, since MAOIs treat depression

Lithium: Side Effects LITH:

Leukocytosis

Insipidus [diabetes insipidus, tied to polyuria]

Tremor/ Teratogenesis

Hypothyroidism

Chapter 6
Pain

**Beneficial Effects Of Inhibition of Prostaglandin
Synthesis i.e. Acetaminophen And NSAIDs (5 A's)**



| |
|-------------------|
| Analgesia |
| Antipyretic |
| Anti-inflammatory |
| Antithrombotic |
| Arteriosus |

(NSAIDs for closure of patent ductus arteriosus)

NSAID Contraindications

| |
|---|
| N ursing and pregnancy |
| S erious bleeding |
| A llergy/ A sthma/ A ngioedema |
| I mpaired renal function |
| D rug (anticoagulant) |

Names of Common NSAIDs: COX-2

| |
|---|
| C elebrex |
| A sprin |
| I ndomethacin/ I buprofen |
| N aproxen |

Alternatively, NSAIDs

| |
|---------------------|
| N aproxen |
| S alicylates |
| A dvil |
| I buprofen |
| D iclofenac |
| S ulindac |

Narcotics: Side Effects

"SCRAM If You See A Drug Dealer":



| |
|---|
| S ynergistic CNS depression with other drugs |
|---|

| |
|----------------------|
| C onstipation |
|----------------------|

| |
|--------------------------------|
| R espiratory depression |
|--------------------------------|

| |
|-------------------|
| A ddiction |
|-------------------|

| |
|----------------|
| M iosis |
|----------------|

Morphine: Effects MORPHINES:

| |
|---|
| M iosis |
| O rthostatic hypotension |
| R espiratory depression |
| P ain suppression |
| H istamine release/ H ormonal alterations |
| I ncreased ICP |
| N ausea |
| E uphoria |
| S edation |

Morphine Side-Effects: MORPHINE:

| |
|---|
| M iosis |
| O ut of it (sedation) |
| R espiratory depression |
| P neumonia (aspiration) |
| H ypotension |
| I nfrequency (constipation, urinary retention) |
| N ausea |
| E mesis |

Opioids: μ -Receptor Effects "MD CARES":



| |
|-------------------------------|
| Miosis |
| Dependency |
| Constipation |
| Analgesics |
| Respiratory depression |
| Euphoria |
| Sedation |

Opioids: Effects BAD AMERICANS:

| |
|--|
| B radycardia & hypotension |
| A norexia |
| D iminished pupillary size |
| A nalgesics |
| M iosis |
| E uphoria |
| R espiratory depression |
| I ncreased smooth muscle activity (biliary tract constriction) |
| C onstipation |
| A meliorate cough reflex |
| N ausea and vomiting |
| S edation |

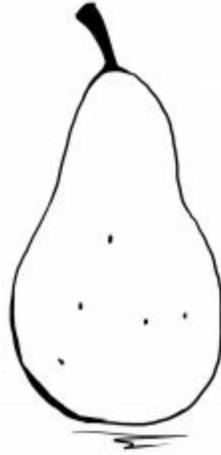
Narcotic Antagonists

The Narcotic Antagonists are NAloxone and NAltrexone.

They treat narcotic overdose.



Morphine: Effects At mu -Receptor PEAR:



| |
|--------------------------------|
| P hysical dependence |
| E uphoria |
| A nalgesia |
| R espiratory depression |

Aspirin: Side Effects ASPIRIN:

| |
|---|
| Asthma |
| Salicyalism |
| Peptic ulcer disease/ Phosphorylation-oxidation uncoupling/ PPH/ Platelet disaggregation/ Premature closure of PDA |
| Intestinal blood loss |
| Reye's syndrome |
| Idiosyncrasy |
| Noise (tinnitus) |



Chapter 7

Endocrine/Immunology

Side Effects Of Systemic Corticosteroids (CORTICOSTEROIDS)

| |
|--------------------------------------|
| Cushing's syndrome |
| Osteoporosis |
| Retardation of growth |
| Thin skin, easy bruising |
| Immunosuppression |
| Cataracts and glaucoma |
| Oedema |
| Suppression of HPA axis |
| Teratogenic |
| Emotional disturbance |
| Rise in BP |
| Obesity (truncal) |
| Increased hair growth (hirsutism) |
| Diabetes mellitus |
| Striae |

Steroid Side Effects CUSHINGOID:

| |
|----------------------------------|
| Cataracts |
| Ulcers |
| Skin: striae, thinning, bruising |

| |
|---|
| Hypertension/ Hirsutism/ Hyperglycemia |
| Infections |
| Necrosis: avascular necrosis of the femoral head |
| Glycosuria |
| Osteoporosis, Obesity |
| Immunosuppression |
| Diabetes |

Steroids (6 S's)

| |
|---|
| S ugar (hyperglycemia) |
| S oggy bones (causes osteoporosis) |
| S ick (decreased immunity) |
| S ad (depression) |
| S alt (water and salt retention) |
| S ex (decreased libido) |

Steroids: Side Effects BECLOMETHASONE:

| |
|---|
| B uffalo hump |
| E asy bruising |
| C ataracts |
| L arger appetite |
| O besity |
| M oon face |
| E uphoria |
| T hin arms & legs |
| H ypertension/ H yperglycemia |
| A vascular necrosis of femoral |

| |
|-----------------------------------|
| head |
| S kin thinning |
| O steoporosis |
| N egative nitrogen balance |
| E motional liability |

Drugs to Use in Rheumatoid Arthritis: MS. AHILA



| |
|----------------------------------|
| M - Methotrexate |
| S - Sulfasalazine |
| |
| A - Adalimumab |
| H - Hydroxychloroquine |
| I - Infliximab |
| L - Leflunomide |
| A - Abatacept |

Busulfan: Features ABCDEF:

| |
|-------------------------------------|
| A lkyating agent |
| B one marrow suppression s/e |
| C ML indication |
| |

| |
|--|
| D ark skin (hyperpigmentation) s/e |
| E ndocrine insufficiency (adrenal) s/e |
| F ibrosis (pulmonary) s/e |

Antirheumatic Agents (Disease Modifying):

CHAMP:



| |
|---|
| C yclophosphamide |
| H ydroxychloroquine and chloroquine |
| A uranofin and other gold compounds |
| M ethotrexate |
| P enicillamine |

Auranofin, Aurothioglucose: Category And Indication

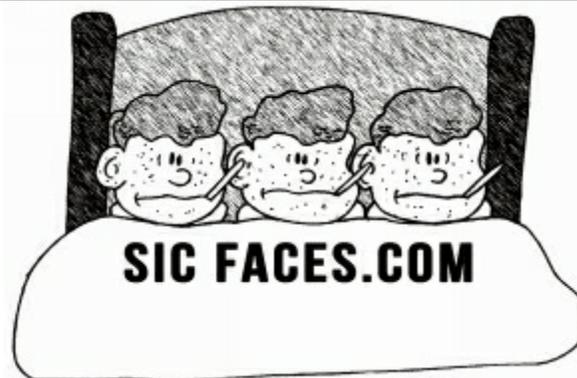
Aurum is Latin for "gold" (gold's chemical symbol is Au).

Generic **Aur-** drugs (**Auranofin**, **Aurothioglucose**) are gold compounds.

Gold's indication is rheumatoid arthritis,

AUR- Acts Upon Rheumatoid.

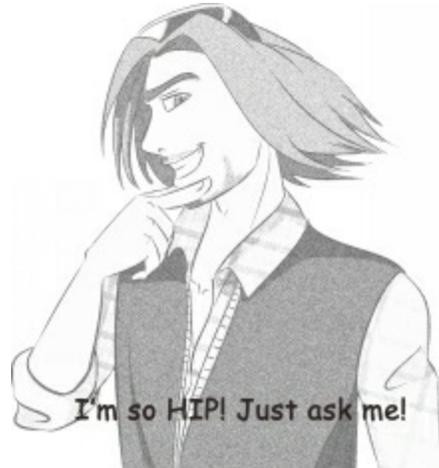
Enzyme Inhibitors: "SICKFACES.COM"



| |
|--|
| S odium valproate |
| I soniazid |
| C imetidine |
| F luoxetine |
| A lcohol |
| E rythromycin and clarithromycin |
| S ulphonamides |
| C iprofloxacin |
| O meprazole |
| M etronidazole |

Lupus: Drugs Inducing It.

HIP:



| |
|----------------------------------|
| H ydralazine |
| I NH |
| P roca <u>i</u> namide |

Chapter 8

GI/Liver

Zero Order Kinetics Drugs (most common ones)
"PEAZ (sounds like pees) out a constant amount":

| |
|-------------------|
| Phenytoin |
| Ethanol |
| Aspirin |
| Zero order |

Someone that pees out a constant amount describes zero order kinetics (always the same amount out).

Hepatic Necrosis: Drugs Causing Focal To Massive Necrosis

"Very Angry Hepatocytes":

| |
|----------------------|
| Valproic acid |
| Acetaminophen |
| Halothane |

Principles of management in toxicology

RESS

| |
|---------------------------------|
| Reduce absorption |
| Enhance elimination |
| Specific antidote |
| Supportive treatment |

8 A's for Hepatotoxic Drugs

| |
|--|
| A nti-tuberculosis |
| A nticonvulsant |
| S odium luminal |
| G abapentin |
| P henytoin |
| T egretol |
| A nticancer |
| A spirin |
| A lcohol |
| A ntifamily (contraceptive pills) |
| A cetaminophen |
| A fatoxins |

Inhibitors of p450:

Inhibitors Stop Cute Kids from Eating Grapefruit.

| |
|--------------------------|
| I NH |
| S ulfonamides |
| C imetidine |
| K etoconazole |
| E rythromycin |
| G rapefruit juice |

IC(see) KEGS (going down)



| |
|---------------------|
| INH |
| Cimetidine |
| |
| Ketoconazole |
| Erythromycin |
| Grapefruit |
| Sulfonamides |

Chapter 9

GU/Reproductive

Diuretics:



Thiazides Indications: “CHIC”

| |
|----------------------------------|
| C ongestive Heart failure |
| H ypertension |
| I nsipidus |
| C alcium calculi |

Osmotic Diuretics: Members GUM:



Glycerol
Urea
Mannitol

Teratogenic Drugs "W/ TERATOgenic":

Warfarin

Thalidomide

Epileptic drugs: phenytoin, valproate, carbamazepine

Retinoid

ACE inhibitor

Third element: lithium

OCP and other hormones (e.g. danazol)

Gynecomastia-Causing Drugs DISCO:

| | | | | |
|-----------------|-------------------|-------------------------|--------------------|--------------------|
| D igoxin | I soniazid | S piroinolactone | C imetidine | O estrogens |
|-----------------|-------------------|-------------------------|--------------------|--------------------|

Alternative,

Gynecomastia Causing Drugs - DISCO 2MTV



Digoxin

Isoniazid

Spirolactone

Cimetidine

Oestrogens

Methyldopa

Metronidazole

TriCyclic Antidepressants

Verapamil

Sex Hormone Drugs: Male "Feminine Males Need Testosterone":

Fluoxymesterone

Methyltestosterone

Nandrolone

Testosterone

**Teratogenic Drugs: Major Non-Antibiotics
TAP CAP:**



Thalidomide **A**ndrogens **P**rogestins
Corticosteroids **A**spirin & indomethacin **P**henytoin

Don't Use 'Safe CT' in Pregnancy



| |
|--------------------------|
| S ulfonamide |
| A minoglycoside |
| F louroquinolones |
| E rythromycin |
| |
| C larithromycin |
| T etracycline |

Drugs Causing Erectile Dysfunction

STOP Erection



| |
|-----------------------------|
| SSRI (fluoxetine) |
| Thioridazone |
| Methyldopa |
| Propranolol |

Uterine Relaxants “It’s Not My Time”



| |
|---------------------|
| Indomethecin |
| Nifedipine |
| Magnesium |
| Terbutaune |

Chapter 10 Hematology

Drugs That Potentiate Warfarin (O DEVICES)

| |
|---|
| • O meprazole |
| • D isulfiram |
| • E rythromycin |
| • V alproate |
| • I soniazid |
| • C iprofloxacin and C imetidine |
| • E thanol (acutely) |
| • S ulphonamides |

Drugs That Decrease The Effectiveness Of Warfarin (PC BRAS)



| |
|-------------------------------|
| P henytoin |
| C arbamazepine |
| B arbiturates |
| R ifampicin |
| A lcohol (chronic use) |
| S ulphonylureas |

Thrombolytic Agents USA:



Urokinase Streptokinase

Alteplase (tPA)

***Enoxaparin (prototype low molecular weight heparin): action, monitoring
EnoXaprin only acts on factor Xa. Monitor Xa concentration, rather than
APTT.***

Warfarin: Action, Monitoring - We PT:

Warfarin works on the **E**xtrinsic pathway and is monitored by **PT**.

Warfarin: Metabolism SLOW:

- Has a slow onset of action.
- A quick Vitamin K antagonist, though.



Small lipid-soluble molecule

Liver: site of action

Oral route of administration.

Warfarin

Lead poisoning: presentation ABCDEFG:



| |
|------------------------------|
| A nemia |
| B asophilic stripping |
| C olicky pain |
| D iarrhea |
| E ncephalopathy |
| F oot drop |
| G um (lead line) |

Chapter 11

Neuro

Side Effects Of Sodium Valproate (VALPROATE)

| |
|--------------------------------|
| Vomiting |
| Alopecia |
| Liver toxicity |
| Pancreatitis/ Pancytopenia |
| Retention of fat (weight gain) |
| Oedema (peripheral) |
| Anorexia |
| Tremor |
| Enzyme inhibitor |

Antimuscarinics: Members, Action

"Inhibits Parasympathetic And Sweat":

| | | | |
|---------------------|------------------------|-----------------------------|---------------------|
| I pratropium | Pi renzepine | At rop i ne | S copolamine |
|---------------------|------------------------|-----------------------------|---------------------|

Muscarinic receptors at all parasympathetic endings sweat glands in sympathetic.

CARE Drugs To Treat Alzheimer's

Cognex

Aricept

REminyl

Exelon

Muscarinic effects SLUG BAM:



Salivation/ Secretions/ Sweating

Lacrimation

Urination

Gastrointestinal upset

Bradycardia/ Bronchoconstriction/ Bowel movement

Abdominal cramps/ Anorexia

Miosis

Cholinergic Crisis: SLUDGE

SLUDGE

| |
|---------------|
| Salivation |
| Lacrimation |
| Urination |
| Defecation |
| Gastric upset |
| Emesis |

Epilepsy Types, Drugs Of Choice:

"Military General Attacked Weary Fighters Proclaiming 'Veni Vedi Veci'"



"After Crushing Enemies":

- Epilepsy types: Myoclonic, Grand mal, Atonic, West syndrome. Focal, Petit mal (absence)
- Respective drugs: Valproate Valproate Valproate ACTH
Carbamazepine Ethosuximide

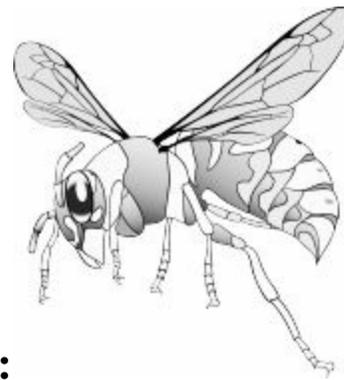
Migraine: Prophylaxis Drugs

"Very Volatile Pharmacotherapeutic Agents For Migraine Prophylaxis":

| |
|-----------------------|
| V erapamil |
| V alproic acid |
| P izotifen |
| A mitriptyline |
| F lunarizine |
| M ethysergide |
| P ropranolol |

Physostigmine vs. Neostigmine LMNOP:

| |
|------------------------------|
| L ipid soluble |
| M iotic |
| N atural |
| O rally absorbed well |
| P hysostigmine |



Neostigmine, on the Contrary, Is:

| |
|---|
| W ater soluble |
| A dministered in myasthenia gravis |
| S ynthetic |
| P oor oral absorption |



SIADH-Inducing Drugs ABCD:

| |
|-------------------------------------|
| A nalgesics: opioids, NSAIDs |
| B arbiturates |
| |

| |
|--|
| Cyclophosphamide/ Chlorpromazine/ Carbamazepine |
|--|

| |
|---------------------|
| Diuretic (thiazide) |
|---------------------|

Phenobarbital: Side Effects

| |
|------------------------------|
| Children are annoying |
|------------------------------|

| |
|--|
| <i>(hyperkinesia, irritability, insomnia, aggression).</i> |
|--|

| |
|------------------------|
| Adults are dozy |
|------------------------|

| |
|--|
| <i>(sedation, dizziness, drowsiness)</i> |
|--|

Phenytoin: adverse effects PHENYTOIN:

| |
|----------------------------|
| P -450 interactions |
|----------------------------|

| |
|-------------------|
| H irsutism |
|-------------------|

| |
|-----------------------|
| E nlarged gums |
|-----------------------|

| |
|-------------------|
| N ystagmus |
|-------------------|

| |
|---------------------------------|
| Y ellow-browning of skin |
|---------------------------------|

| |
|------------------------|
| T eratogenicity |
|------------------------|

| |
|----------------------|
| O steomalacia |
|----------------------|

| |
|---|
| I nterference with B12 metabolism (hence anemia) |
|---|

| |
|---|
| N europathies: vertigo, ataxia, and headache |
|---|

Anticholinergic Side Effects

"Know the ABCD'S of anticholinergic side effects":

| |
|--|
| A norexia |
| B lurry vision |
| C onstipation/ C onfusion |
| D ry Mouth |
| S edation/ Stasis of urine |

Myasthenia Gravis: Edrophonium Vs. Pyridostigmine

eDrophonium is for **D**agnosis.

py**R**IDostigmine is to get **R**ID of symptoms.



Cholinergics (e.g. Organophosphates): Effects

If you know these, you will be "LESS DUMB":



Lacrimation

Excitation of nicotinic synapses

Salivation

Sweating

Diarrhea

Urination

Micturition

Bronchoconstriction

Methyldopa:

Side Effects METHYLDOPA:

Mentally challenged

Electrolyte imbalance

Tolerance

Headache/ **H**epatotoxicity

ps**Y**chological upset

Lactation in women

Dry mouth

Oedema

Parkinsonism
Anemia (hemolytic)

Botulism Toxin: Action, Related Bungarotoxin

Action: "Botulism Bottles up the Ach so it can't be the released":

Related bungarotoxin: "Botulism is related to Beta Bungarotoxin (beta-, not alpha-bungarotoxin--alpha has different mechanism).

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