FREE SAMPLE

Pharmacology Mastery Notes

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Chapter 1: Introduction to Pharmacology

DRUG CLASSIFICATION AND SUFFIXES

SUFFIX	DRUG CLASS	EXAMPLE	USE
-PRIL	ACE INHIBITORS	LISINOPRIL	HYPERTENSION, HEART FAILURE
-LOL	BETA-BLOCKERS	METOPROLOL	HYPERTENSION, ARRHYTHMIAS
-SARTAN	ARBS	LOSARTAN	HYPERTENSION
-DIPINE	CALCIUM CHANNEL BLOCKERS	AMLODIPINE	HYPERTENSION, ANGINA
-STATIN	HMG-COA REDUCTASE INHIBITORS	ATORVASTATIN	LOWER CHOLESTEROL
-PRAZOLE	PROTON PUMP INHIBITORS	OMEPRAZOLE	ACID REFLUX
-CILLIN	PENICILLINS	AMOXICILLIN	BACTERIAL INFECTIONS
-MYCIN	MACROLIDE ANTIBIOTICS	AZITHROMYCIN	BACTERIAL INFECTIONS
-FLOXACIN	FLUOROQUINOLONES	CIPROFLOXACIN	BACTERIAL INFECTIONS
-IDE	SULFONYLUREAS	GLIPIZIDE	DIABETES MANAGEMENT

CONTROLLED SUBSTANCES SCHEDULES (I-V)

Controlled substances are categorized based on their abuse potential:

- **Schedule I**: Illegal (no medical use) – Heroin, LSD, Ecstasy
- **Schedule II**: High abuse potential – Morphine, Oxycodone, Ritalin
- **Schedule III**: Moderate abuse potential – Codeine, Ketamine
- **Schedule IV**: Low abuse potential – Benzodiazepines (Xanax, Valium)
- **Schedule V**: Lowest abuse potential – Cough syrups with codeine

Mnemonic: "I Am The Fighting Nurse"

- 1 Illegal (I)
- 2 Addictive (II)
- 3 Therapeutic (III)
- 4 Few Risks (IV)
- 5 Not a Big Deal (V)

PREGNANCY DRUG CATEGORIES

Drugs are categorized based on their safety in pregnancy:

- **Category A**: No risk to fetus in human studies (e.g., Folic Acid, Levothyroxine).
- **Category B**: No risk in animal studies, no human studies (e.g., Amoxicillin, Zofran).
- **Category C**: Risk in animal studies, benefits may outweigh risks (e.g., Fluoroquinolones, SSRIs).
- **Category D**: Evidence of fetal risk, but benefits may outweigh risks (e.g., ACE inhibitors, Phenytoin).
- **Category X**: Contraindicated in pregnancy due to fetal abnormalities (e.g., Warfarin, Isotretinoin).

NCLEX TIPS: Prioritization of Medication Administration

- **High-risk** medications (e.g., anticoagulants, opioids, insulin) require double-checking.
- Look for **priority** cues in NCLEX questions, such as "Which patient should the nurse see first?"
- Use **SBAR** (Situation, Background, Assessment, Recommendation) when communicating concerns.

Chapter 3. Cardiovascular Medications

ANTIPLATELETS & ANTICOAGULANTS — Prevent Clots!

Antiplatelets		Anticoagulants
Prevent platelets from **sticking together** (prevent thrombus in arteries)	MECHANISM OF ACTION	Prevent clot formation by **inhibiting clotting factors** in the coagulation cascade
Aspirin, Clopidogrel, Ticagrelor	EXAMPLES	Heparin, Warfarin, Enoxaparin, DOACs (Apixaban, Rivaroxaban)
CAD, MI, stroke prevention, stents	INDICATIONS	DVT, PE, AFib, mechanical heart valves

🚨 **Nursing Considerations:**
✅ Monitor for bleeding (gums, urine, stool)!
✅ Warfarin: Monitor INR (Therapeutic: 2-3)

antiplatelet types

ASPIRIN (ASA)

Mechanism of Action:
- Inhibits COX-1, preventing platelet aggregation (irreversible effect for 7-10 days)

🚫 **Side Effects:**
- GI bleeding, ulcers
- Tinnitus (sign of toxicity!)

🚨 **Nursing Considerations:**
✅ Take with food to prevent stomach irritation
✅ Avoid in children (Reye's syndrome risk!)
🩺 **NCLEX Tip**: If a patient on aspirin reports ringing in the ears, suspect toxicity and stop the drug!

CLOPIDOGREL (PLAVIX)

Mechanism of Action:
- Blocks ADP receptors on platelets, preventing aggregation

inside stents)
🚫 **Side Effects:** Bleeding, bruising
🚨 **Nursing Considerations:**
✅ Hold before surgery (5-7 days prior)
✅ Monitor platelet counts
🩺 **NCLEX Tip**: If a patient on clopidogrel develops black stools, assess for GI bleeding!

NCLEX TIPS

Antiplatelets: "Aspirin & Clopidogrel Keep Arteries Clear"

🔹 Warfarin vs. Heparin:
- **Heparin** = High speed (fast-acting), PTT monitoring, Protamine antidote
- **Warfarin** = Weeks to work, INR monitoring, Vitamin K antidote

Anticoagulants types

HEPARIN (IV/SQ): FAST ACTING!

Mechanism of Action:
- Activates antithrombin III, which inhibits thrombin & Factor Xa, preventing fibrin formation → Prevents clots from growing but does NOT dissolve existing clots!

🚫 **Side Effects:**
- Bleeding (high risk!)
- **Heparin-Induced Thrombocytopenia (HIT)** 🚨 (low platelets, paradoxical clots)

🚨 **Nursing Considerations:**
✅ Monitor aPTT (Therapeutic Range: 46-70 sec)
✅ If aPTT >70 sec = HIGH bleeding risk → Hold dose & notify provider
✅ ANTIDOTE: Protamine sulfate
🩺 **NCLEX Tip**: If a patient on heparin suddenly develops low platelets (<100,000), suspect HIT and STOP heparin immediately!

LOW MOLECULAR WEIGHT HEPARIN (LMWH)

ENOXAPARIN (LOVENOX)

Mechanism of Action:
- Inhibits Factor Xa, leading to slower clot formation

🚫 **Side Effects:**
- Bleeding (lower risk than heparin)
- Bruising at injection site

🚨 **Nursing Considerations:**
✅ Given SQ (not IV) → DO NOT rub injection site
✅ Monitor for signs of bleeding (black tarry stools, hematuria, low BP)
✅ No need for routine aPTT monitoring
🩺 **NCLEX Tip**: Never give enoxaparin with heparin → increased bleeding risk!

WARFARIN (COUMADIN) - LONG-TERM USE

Mechanism of Action:
- Inhibits Vitamin K-dependent clotting factors (II, VII, IX, X)
- Takes 3-5 days to take effect → Overlap with heparin at first!

🚫 **Side Effects:**
- Bleeding risk (especially in elderly patients)

🚨 **Nursing Considerations:**
✅ Monitor **INR** (Therapeutic Range: 2-3, or 2.5-3.5 for mechanical valves)
✅ INR >3 = Bleeding risk → Hold dose & notify provider
✅ **Antidote**: Vitamin K (Phytonadione)
✅ **Avoid excessive green leafy vegetables** (high in Vitamin K, which decreases warfarin effect)
🩺 **NCLEX Tip**: If INR is 4.5 or higher, hold warfarin and give Vitamin K if there's active bleeding!

Chapter 8. Endocrine Medications

DIABETES MEDS

INSULIN (TYPE 1 & TYPES 2)

🔴 *Insulin lowers blood sugar by moving glucose into cells.*

TYPE	ONSET	PEAK	DURATION
RAPID (LISPRO, ASPART)	15 MIN	1 HR	3-5 HRS
SHORT (REGULAR)	30-60 MIN	2-4 HRS	6-10 HRS
INTERMEDIATE (NPH)	2-4 HRS	6-12 HRS	12-18 HRS
LONG (GLARGINE, DETEMIR)	2-4 HRS	NO PEAK	24+ HRS

- **Dawn Phenomenon**: Hyperglycemia in the morning (↑ GH overnight) → Increase insulin at bedtime
- **Somogyi Effect**: Rebound hyperglycemia due to nighttime hypoglycemia → Reduce bedtime insulin

🚨 **NURSING CONSIDERATIONS**

✅ NPH is CLOUDY, Regular is CLEAR
✅ Need to draw up Regular first
✅ Give **rapid**-acting insulin **WITH meals**! (PEAK = Hypoglycemia risk!)
✅ **Never mix long-acting** insulin! (Glargine/Detemir = DO NOT mix!)
✅ **Rotate** injection sites (prevents lipodystrophy & skin thickening).
✅ Monitor for **hypoglycemia**! Signs: Cold, clammy, sweating, shakiness = GIVE SUGAR!

ORAL HYPOGLYCEMICS (FOR TYPE 2 DM)

🛑 *Oral diabetes meds help lower blood sugar levels in Type 2 Diabetes.*

1. Biguanides – First-Line Treatment!

💊 Example**: Metformin** (Glucophage)
✅ Lowers glucose production in the liver, increases insulin sensitivity.
🚨 **Nursing Considerations:**
✅ HOLD before contrast dye! (Risk of lactic acidosis)
✅ Take with food to reduce GI upset (diarrhea, nausea).
✅ Monitor kidney function! (Creatinine >1.3 = NO Metformin!)
💡 **Mnemonic: "Metformin = Minimal risk of low sugar, but Major GI issues!"**

2. **Sulfonylureas** – Pancreas Stimulators!
💊 Examples**: Glipizide, Glyburide, Glimepiride**
✅ Stimulates the pancreas to release insulin.
🚨 **Nursing Considerations:**
✅ Major risk of hypoglycemia! (Avoid skipping meals!)
✅ Avoid alcohol! (Severe hypoglycemia risk)
✅ Weight gain is common!
💡 **Mnemonic: "Sulfonylureas = Sugar Falls (Hypoglycemia Risk)!"**

3. **DPP-4 Inhibitors ("-gliptin") – Delays Sugar Absorption!**
💊 Examples**: Sitagliptin (Januvia), Linagliptin, Saxagliptin**
✅ Increases insulin secretion & reduces sugar release from the liver.
🚨 **Nursing Considerations:**
✅ **Risk of pancreatitis! (Severe abdominal pain = STOP med!)**
✅ **Low hypoglycemia risk (safer for elderly patients).**

Chapter 15. NCLEX-Style Pharmacology Questions with Answers & Rationales

Question 11
A patient receiving an intravenous infusion of nitroprusside develops confusion, headache, and a bright red tongue. The nurse suspects cyanide toxicity. Which intervention is the priority?
A. Stop the infusion immediately and notify the provider
B. Slow the infusion rate and monitor for improvement
C. Administer sodium bicarbonate to neutralize acidosis
D. Encourage oral hydration to flush the toxin

Question 12
A patient with myasthenia gravis is prescribed pyridostigmine. The nurse should assess for which sign that indicates a cholinergic crisis?
A. Muscle weakness and respiratory depression
B. Hypertension and tachycardia
C. Dry mouth and constipation
D. Confusion and blurred vision

Question 13
A patient receiving amiodarone therapy for ventricular arrhythmias should be monitored for which serious adverse effect?
A. Hepatotoxicity
B. Pulmonary fibrosis
C. Pancreatitis
D. Acute kidney injury

Question 14
A patient receiving heparin therapy for a deep vein thrombosis (DVT) has an aPTT of 95 seconds (normal: 25-35 seconds). What is the nurse's priority action?
A. Continue the infusion and recheck the aPTT in 4 hours
B. Decrease the infusion rate and monitor for signs of bleeding
C. Stop the infusion and administer protamine sulfate
D. Increase the infusion rate to maintain anticoagulation

Question 15
A patient with schizophrenia is prescribed clozapine. Which finding requires immediate discontinuation of the medication?
A. Constipation and dry mouth
B. White blood cell count of 2,000/mm^3
C. Weight gain of 10 lbs in 2 weeks
D. Dizziness when changing positions

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