NCLEX-RN PHARMACOLOGY · NEXT GENERATION NCLEX · 2026 TEST PLAN

Alpha-1 Adrenergic *Antagonists* "-osin"

DRUG CLASS

SYSTEM: CARDIOVASCULAR + GENITOURINARY

HIGH-ALERT: ORTHOSTATIC HYPOTENSION

PROTOTYPE: PRAZOSIN (MINIPRESS)

01 Drug Overview

WHY WE GIVE IT

> ***Block sympathetic "fight-or-flight" at the blood vessels and prostate → arteries relax, urine flows.***

PRIMARY INDICATIONS

- ✓ **Hypertension** — esp. in men with coexisting BPH (2-for-1 benefit)
- ✓ **Benign Prostatic Hyperplasia (BPH)** — relieves urinary retention
- ✓ **PTSD nightmares** — **prazosin** is FIRST-LINE
- ✓ **Raynaud's phenomenon** — vasodilation of peripheral arteries
- ✓ **Pheochromocytoma** — preop BP control (phenoxybenzamine)

HIGH-YIELD CLINICAL USE

- →Not first-line for HTN alone (JNC/ACC guidelines) — add-on after ACE/ARB, CCB, thiazide
- →**Tamsulosin (Flomax)** = BPH-selective, minimal BP drop
- →**Prazosin** = HTN + PTSD nightmares (penetrates CNS)
- →Unique perk: **improves lipid profile** (↓ LDL, ↑ HDL)
- →Safe in pts with asthma/COPD (unlike beta-blockers)

02 Mechanism of Action

HOW IT CHANGES PHYSIOLOGY

VASCULAR	Block α_1 receptor	→	Arterial + venous smooth muscle relaxes	→	↓ SVR / ↓ preload	→ ↓ BP
GU	Block α_1A in prostate/bladder neck	→	Sphincter relaxation	→	↑ Urine flow	
CNS	Block central α_1 (prazosin)	→	↓ Nightmare-fueled adrenergic surge	→	↓ PTSD nightmares	
REFLEX	Baroreceptors sense ↓BP	→	SNS compensates	→	⚠ Reflex tachycardia	

THE KEY DISTINCTION — A_1 BLOCKER VS A_2 AGONIST (CLONIDINE)

- **α_1 antagonists:** block peripheral α_1 → vasodilation (works at the vessel)
- **α_2 agonists:** stimulate central α_2 → ↓ sympathetic outflow (works at the brainstem)
- Both lower BP — **opposite mechanisms**. Classic NCLEX confusion point.

03 Therapeutic Effects

WHAT TELLS YOU IT'S WORKING

CARDIOVASCULAR RESPONSE

- ✓ SBP drop of **10–15 mmHg** within 2–4 hours of first dose
- ✓ DBP drop of 5–10 mmHg
- ✓ Improved exercise tolerance
- ✓ ↓ LDL cholesterol, ↑ HDL (favorable lipid shift)

GENITOURINARY RESPONSE

- ✓ Improved urinary stream within **1–2 weeks**
- ✓ ↓ Nocturia, ↓ urgency, ↓ incomplete emptying
- ✓ ↓ Post-void residual volume
- ✓ AUA symptom score improves by 30–50%

NEUROPSYCHIATRIC (PRAZOSIN)

- ✓ ↓ Frequency/intensity of PTSD nightmares in 2–4 weeks
- ✓ Improved sleep quality
- ✓ ↓ Hyperarousal symptoms

PERIPHERAL (RAYNAUD'S)

- ✓ ↓ Frequency/severity of vasospastic attacks
- ✓ Warmer extremities, improved color

04 Side Effects & Adverse Reactions

COMMON VS LIFE-THREATENING

COMMON (EXPECTED)

- **Orthostatic hypotension** (the most common!)
- Dizziness, lightheadedness
- Headache
- Nasal congestion ("stuffy nose")
- Fatigue, drowsiness
- Reflex tachycardia / palpitations
- Peripheral edema
- Dry mouth
- **Retrograde / abnormal ejaculation** (tamsulosin, silodosin)

SERIOUS / LIFE-THREATENING

- **FIRST-DOSE PHENOMENON** — severe ↓BP + syncope within 30–90 min of initial dose (or after dose ↑)
- **Severe orthostatic syncope** → falls, hip fractures, head injury
- **Priapism** — erection >4 hrs = **MEDICAL EMERGENCY** (permanent damage risk)
- **Intraoperative Floppy Iris Syndrome (IFIS)** — complicates cataract surgery (tamsulosin)
- **Reflex tachycardia** → may trigger angina or MI in CAD patients
- Severe hypotension if combined with **PDE-5 inhibitors** (sildenafil, tadalafil, vardenafil)
- Olmesartan-like **sprue-like enteropathy** is NOT a feature here — different drug class, don't confuse

> *The first dose can drop a patient to the floor. Literally. Always give the first dose at bedtime.*

05 Priority Nursing Considerations

ASSESS · MONITOR · HOLD · NOTIFY

→ ASSESS / MONITOR

- →BP **lying AND standing** (orthostatic set)
- →HR — watch for reflex tachycardia (>100)
- →Fall risk → implement bed alarm, call-light in reach
- →Mental status, dizziness, near-syncope
- →Urinary symptoms (BPH pts): flow, retention, residual
- →Medication reconciliation — check for sildenafil/tadalafil

⏸ HOLD THE DRUG IF...

- SBP **< 90 mmHg** or DBP < 60
- Symptomatic hypotension (dizzy, syncope, near-fall)
- HR > 110 with palpitations
- Patient reports **fainting** after last dose
- Signs of angina / chest pain
- Scheduled cataract surgery (tamsulosin — notify surgeon)

✕ CONTRAINDICATIONS / CAUTIONS

- ✕ Concurrent PDE-5 inhibitors (sildenafil, tadalafil, vardenafil)
- ✕ Severe hepatic impairment
- ✕ History of orthostatic hypotension / syncope
- ✕ Pregnancy (Category C — benefit vs. risk)
- ✕ Known hypersensitivity to quinazolines (prazosin)

⚠ DRUG INTERACTIONS

- **PDE-5 inhibitors** → severe ↓BP (separate by ≥4 hrs, ↓ dose)
- **Other antihypertensives** → additive ↓BP
- **Beta-blockers** → ↑ first-dose syncope risk
- **Diuretics** → ↑ orthostasis (volume depletion)
- **NSAIDs** → ↓ antihypertensive effect
- **Cimetidine, ketoconazole** → ↑ tamsulosin levels (CYP3A4)
- **Alcohol** → ↑ hypotension + dizziness

📞 NOTIFY PROVIDER IMMEDIATELY FOR:

Syncope or fall

Erection lasting > 4 hours (priapism)

Chest pain, palpitations, dysrhythmia

Sustained SBP < 90 mmHg

Pre-op planning (especially cataract surgery)

06 Labs & Diagnostics

WHAT TO TRACK

PRIMARY MONITORING

- **BP** — lying & standing; baseline & ongoing
- **HR** — reflex tachy > 100 is red flag
- **Orthostatic vitals** — check before ambulation
- **Weight/I&O** — peripheral edema monitoring

SUPPORTIVE LABS

- **BUN / Creatinine** — renal function baseline
- **LFTs (AST/ALT)** — hepatic metabolism
- **Lipid panel** — should IMPROVE over time
- **Na^+ / K^+** — if on diuretics concurrently
- **PSA** — **tamsulosin does NOT falsely lower PSA** (unlike finasteride, which halves it)

CRITICAL VALUES / RED FLAGS

- SBP < 90 or MAP < 65 → hold, notify, IV fluids
- Orthostatic drop > 20 mmHg SBP (or >10 DBP) + symptoms
- HR > 110 with chest pain → possible ischemia
- Sudden rise in Cr → possible pre-renal AKI from hypotension

07 Administration & Safety

ROUTE · TIMING · PRECAUTIONS

ROUTE & TIMING

- → All are **PO** (oral)
- → **FIRST DOSE AT BEDTIME** — critical for safety
- → Tamsulosin: **30 min AFTER the same meal** daily (consistency matters)
- → Prazosin: with or without food
- → Doxazosin/Terazosin: may be given AM once tolerated
- → Do **NOT crush or chew** extended-release formulations

FIRST-DOSE PROTOCOL

- ✓ Start **low** (prazosin 1 mg; doxazosin 1 mg)
- ✓ Give at **bedtime** → patient already supine
- ✓ Instruct: stay in bed, do NOT get up alone
- ✓ Call for help for bathroom x 24 hrs
- ✓ Titrate dose upward slowly over weeks
- ✓ Re-initiate first-dose precautions after **any dose increase** or after a missed dose >2 days

⚠ HIGH-ALERT PRECAUTIONS

- Implement **fall precautions**: bed low, call light in reach, non-skid footwear
- Rise slowly: sit up → dangle legs → stand (3-step method)
- Never abruptly discontinue → rebound HTN (taper instead)
- Ask about **cataract surgery** before starting tamsulosin; if on it, notify ophthalmologist >2 wks pre-op

08 Patient Education

TEACH-BACK PRIORITIES

WHAT THEY MUST KNOW

- ✓ Take the first dose **at bedtime** and stay in bed
- ✓ Change positions **slowly** (sit → dangle → stand)
- ✓ Avoid alcohol, hot showers, saunas (worsen ↓BP)
- ✓ Take at the same time every day
- ✓ Don't stop suddenly — taper with provider
- ✓ Report to EVERY provider/dentist/surgeon
- ✓ Continue BP readings at home; log results

WHEN TO SEEK EMERGENCY HELP

- ! **Erection lasting > 4 hours** — ER NOW (priapism)
- ! Fainting or near-fainting episode
- ! Chest pain, racing heart
- ! Severe dizziness that doesn't resolve sitting
- ! Signs of allergic reaction (rash, swelling, breathing difficulty)

✕ DO NOT TAKE WITH

- ✕ Sildenafil (Viagra), tadalafil (Cialis), vardenafil (Levitra)
- ✕ Other BP meds unless prescribed together
- ✕ OTC cold meds with pseudoephedrine (counteracts effect)
- ✕ Large amounts of alcohol

LIFESTYLE TEACHING

- ✓ DASH diet, ↓ sodium (synergistic with BP goal)
- ✓ Hydration — but don't overdo before bed (BPH pts)
- ✓ Exercise gradually; avoid sudden strenuous activity
- ✓ Get up slowly from chairs, bed, toilet
- ✓ Men on tamsulosin: mention to eye surgeon even if stopped

09 NCLEX Test Traps

⚠ WHAT STUDENTS CONFUSE

TRAP 01 · TIMING

✕ "Take the first dose first thing in the morning."

✓ FIRST DOSE AT BEDTIME — patient is already horizontal, ↓ syncope/fall risk.

TRAP 02 · TAMSULOSIN ≠ ANTIHYPERTENSIVE

✕ "Give tamsulosin to lower BP."

✓ Tamsulosin is α_1A-selective → mostly acts on PROSTATE. Used for BPH, NOT for HTN.

TRAP 03 · PRIAPISM PRIORITY

✕ "Tell the patient to call the clinic in the morning."

✓ Erection > 4 hrs = **ER immediately**. Ischemic priapism causes permanent damage in 6–12 hrs.

TRAP 04 · WHICH BP TO PRIORITIZE

✕ "Monitor BP — the concern is severe hypertension."

✓ The #1 concern is **orthostatic HYPO**tension, not uncontrolled HTN. Fall = first harm.

TRAP 05 · A_1 VS A_2 AGONIST

✕ "Prazosin and clonidine work the same way."

✓ Prazosin = α_1 BLOCKER peripherally. Clonidine = α_2 AGONIST centrally. Opposite mechanisms, same outcome (↓BP).

TRAP 06 · CATARACT SURGERY

✕ "Start tamsulosin today — we'll worry about the cataract surgery next month."

✓ IFIS risk. Always ask about cataract surgery FIRST; notify ophthalmologist ≥2 weeks pre-op.

TRAP 07 · STOPPING ABRUPTLY

✕ "Discontinue immediately if side effects bother you."

✓ Abrupt stop = **rebound HTN**. Must taper over 1–2 weeks.

TRAP 08 · SILDENAFIL COMBO

✕ "Sildenafil is fine as long as you space it by 2 hours."

✓ Separate by **≥4 hours**, use lowest dose, monitor BP. Syncope/MI risk is real.

TRAP 09 · PSA MISREAD

✕ "Tamsulosin lowers PSA — recheck after stopping."

✓ Tamsulosin does NOT affect PSA. **Finasteride/dutasteride** cut PSA in half (that's the trap drug).

TRAP 10 · THE "STUFFY NOSE" DISTRACTOR

✕ "A patient with nasal congestion — hold the drug."

✓ Nasal congestion is a **common, expected** side effect (α_1 blockade = vasodilation in nasal mucosa). Not a hold.

10 Memory Boosters

MNEMONICS + PATTERNS

💊 DRUG-CLASS PATTERN

If it ends in "-OSIN" → it's an α_1 blocker.

prazOSIN · doxazOSIN · terazOSIN · tamsulOSIN · alfuzOSIN · silodOSIN

🎯 "PRAZOSIN" — WHAT IT TREATS

P ressure (HTN)
R aynaud's
A drenergic blockade (α_1)
Z z's disturbed (PTSD nightmares)
O rthostasis = #1 concern
S yncope = first-dose effect
I ncreases urinary flow
N ightmares relief

🧯 "FLOPPY" — KEY WARNINGS

F irst-dose syncope → bedtime
L ow BP (orthostatic) → rise slow
O cular — IFIS (cataract warning)
P riapism > 4 hr = ER
P DE-5 inhibitors = danger combo
Y our nose will stuff up (harmless)

QUICK RECALL PATTERNS

→ **α_1 BLOCK = RELAX:** arteries, veins, prostate, bladder neck

CROSS-CLASS INTEGRATION

→ **Beta-blockers ("-olol"):** ↓ HR + ↓ BP, bronchoconstrict

→**FLO**max = **FLO**w (urine) → BPH drug

→**Mini**press (prazosin) = **mini** pressure = ↓BP

→"-osin" drugs → sit them **Down** before you give, sit them **Down** before they stand

→First dose + bedtime = no broken hips

→**α_1 blockers ("-osin")**: ↓ BP, reflex tachy, no bronchospasm

→**α_2 agonists (clonidine)**: central ↓ SNS, rebound HTN

→**Mixed α+β (carvedilol, labetalol)**: heart failure + HTN

→**5α-reductase (finasteride)**: shrinks prostate, ↓ PSA by 50%, no BP effect

★ FINAL SECTION · CLINICAL JUDGMENT SNAPSHOT

Think like the *NCLEX.* Prioritize like a *nurse.*

#1 PRIORITY RISK

Severe orthostatic hypotension → syncope → fall with injury

The first-dose phenomenon can cause a SBP drop within 30–90 min of initial dose or dose increase. Hip fracture, head injury, and rhabdomyolysis are all downstream harms. Fall risk is the NCLEX's #1 association with this class.

WHAT WILL HARM FIRST

The patient stands up, syncopes, and hits the floor

Not the hypertension. Not the BPH. The sympathetic reflex is blunted by the α_1 blockade, so when the patient stands, blood pools in the legs and cerebral perfusion drops suddenly. First dose, morning dose after missed days, or any dose increase — all reset the risk.

FIRST NURSING ACTION

Check BP lying and standing — then keep patient SAFE before anything else

If hypotensive/syncopal: place **supine**, elevate legs, hold drug, assess airway, obtain full set of vitals, notify provider. **Safety first, then assessment, then escalation.** Calling the provider is NOT the first action — protecting the airway and circulation is.

"If you remember only one thing: **first dose at bedtime, rise slowly, watch for the fall.***"*

Most-Tested Drugs in This Class

KNOW THE DIFFERENCES

DRUG	SELECTIVITY	PRIMARY USE	KEY NCLEX POINTS
Prazosin Minipress · PROTOTYPE	α_1 (non-selective subtype)	HTN · PTSD nightmares · Raynaud's	CNS penetration → PTSD. Short half-life → BID–TID dosing. Strongest first-dose effect.
Doxazosin Cardura	α_1 (non-selective subtype)	HTN · BPH	Long half-life → daily dosing. ALLHAT trial: ↑ HF risk vs thiazides — NOT first-line for HTN alone.
Terazosin Hytrin	α_1 (non-selective subtype)	HTN · BPH	Similar to doxazosin. Marked first-dose hypotension.
Tamsulosin Flomax · MOST TESTED	α_1A-SELECTIVE (prostate)	BPH only	Minimal BP effect. **IFIS risk** during cataract surgery. Take 30 min after same meal daily. Abnormal ejaculation common.
Alfuzosin Uroxatral	α_1A-preferential	BPH	↑ QT prolongation risk. Avoid with CYP3A4 inhibitors (ketoconazole).
Silodosin Rapaflo	α_1A-highly selective	BPH	Highest rate of abnormal/retrograde ejaculation. Minimal cardiovascular effect.
Phenoxybenzamine Dibenzyline · ≠ "-osin"	α_1 + α_2 (non-selective, IRREVERSIBLE)	Pheochromocytoma	Given PREOP before beta-blocker (never reverse order → hypertensive crisis). "α before β" rule.

⚠ THE "A BEFORE B" RULE — PHEOCHROMOCYTOMA PREP

- ALWAYS start **α-blocker first** (phenoxybenzamine) → then β-blocker
- If β-blocker is given FIRST → unopposed α stimulation → **hypertensive crisis**

Classic NCLEX Select-All-That-Apply / priority question