

PNS

1. Preganglionic – _____
 - a. _____ @ Ganglion
 - b. _____ @ Organ
2. Stimulation Causes:
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 - f. _____

SNS

1. Preganglionic – _____
 - a. _____ @ Ganglion
 - b. _____ @ Organ
2. Stimulation Causes:
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 - f. _____

ENS

- a. Enteric system modulated by ____ & ____

Somatic

- a. _____
- b. _____ @ Organ

Adrenal

- a. _____ @ Adrenal
- b. Releases ____ + ____

ACh

- a. Release stimulated by ____
- b. Metabolized by ____

Muscarinic Receptors

- a. __, __, __ > __ > PLC > IP3 + DAG > ____
- b. __, __ > __ > inhibits adenylyl cyclase > ____; M2 increase K⁺ conductance

Nicotinic Receptors

- a. Activates ligand channel > depolarization

Norepinephrine

- a. _____ postganglionic nerve in SNS
- b. Released from _____
- c. Metabolized by _____

Epinephrine

- a. Released from _____

α_1	↓GI Tone, Mydriasis, ↑PVR, ↑Bladder Sphincter Tone	
α_2	↓NE, ↓Lipolysis, ↓Insulin, ↓Aqueous Humor, ↓ACh	
β_1	↑HR, ↑Contractility ↑Lipolysis, ↑Renin	
β_2	↓PVR, bronchodilation, ↑Glu, ↓Uterine Tone	
β_3	↑Lipolysis, Bladder Relaxation	

Desensitization

Direct Acting Cholinergic Agonists

I. Drugs

- A. _____ > _____
- B. _____ > _____
- C. _____ > _____
- D. _____ > _____ + _____

II. Activity: Stim _____ & _____

III. Adverse Effects

- A. _____

Centrally Acting Cholinergic Agonists

I. Drugs

- A. _____ > Alzheimer's Dementia
- B. _____ > Alzheimer's Dementia
- C. _____ > Alzheimer's Dementia

II. Activity: Stim. _____ & _____

III. Adverse Effects

- A. _____ & _____
- B. _____

Reversible Cholinesterase Inhibitors

I. Drugs

- A. _____ > Dx _____
- B. _____ > _____
- C. _____ > _____ + _____
- D. _____ > _____

II. Activity: _____

III. Adverse Effects

- A. _____

Irreversible Cholinesterase Inhibitors

I. Drugs

- A. _____ > _____
- B. _____ > _____
- C. _____ > _____
- D. _____ > _____

II. Activity: _____

III. Adverse Effects

- A. _____

Antimuscarinics (Non-GU/Bladder)

I. Drugs

- A. _____ e > EYE: Induces
_____/_____; GI: _____; CV:
_____; Tox: _____

- B. _____ > Parkinson's +

- C. _____ > _____ + _____

- D. _____ > _____ + _____ in Preg

- E. _____ > _____

- F. _____ > _____, _____

- G. _____ > _____

- H. _____ > Parkinson's;

II. Activity: _____

III. Adverse Effects

- A. _____, _____,
_____, _____,
_____, _____,

Antimuscarinics (GU/Bladder)

I. Drugs

- A. _____ > Overactive Bladder
- B. _____ > Overactive Bladder
- C. _____ > Overactive Bladder
- D. _____ > Overactive Bladder
- E. _____ > Overactive Bladder
- F. _____ > Overactive Bladder

II. Activity: _____

III. Adverse Effects

- A. _____, _____,
_____, _____,
_____, _____,

Nicotine

I. Activity: _____;

_____, then _____ at high doses

II. _____

A. ↑ Dopamine, NE, ACh, Glutamine, Serotonin, β-endorphin, GABA

III. Adverse Effects

A. High Doses: _____ -> _____ & _____

B. Withdrawal: _____, _____, HA Tremor, _____, diarrhea, _____, ↑ BP

IV. Cessation: _____, _____, _____

Depolarizing Neuromuscular Blockers

I. Drugs

A. _____ > _____, _____

II. Activity: _____

A. Phase 1: _____

B. Phase 2: _____

III. Adverse Effects

A. _____

B. _____

1. _____ -> ↑ O₂ needs and metabolites, ↑ Temperature

2. Tx: _____ + _____

3. _____

C. _____: Burns, Crush, Stroke, Renal Failure, Cong. Myopathy

Nondepolarizing Neuromuscular Blockers

I. Drugs

A. _____ > Procedural paralysis

B. _____ > Procedural paralysis

C. _____ > Procedural paralysis

D. _____ > Procedural paralysis

II. Activity: _____;

Catecholamines

I. Drugs

A. _____ > _____, _____, _____, Local anesthesia

1. Receptors: _____ + _____

2. Effects: _____, _____

3. Adverse Effects: _____, _____

B. _____ > _____

1. Receptors: _____, _____, weak _____

2. Effects: _____

3. Adverse Effects: _____, _____

C. _____ > _____

1. Receptors: _____, _____, _____, _____

2. _____, _____, _____

D. _____ > _____

1. Receptors: _____

2. _____, _____

E. _____ > _____

1. Receptors: _____

Peripherally Acting Alpha Agonists

I. Drugs

A. _____ > _____, _____, _____

1. Receptors: _____

B. _____ > _____

1. Receptors: _____, _____

2. Adverse Effects: _____

Centrally Acting Alpha Agonists

I. Drugs

A. _____ > _____, _____

B. _____ > _____ in Preg

II. Activity: _____, _____

III. Adverse Effects: _____, _____

Dopamine-1 Agonist

I. Drugs

A. _____ > _____

II. Receptors: _____; Dilates _____, _____, _____ arterioles

β₂ Agonists

I. Drugs

A. _____ > Acute asthma, COPD

B. _____ > Tocolysis (Off-label)

C. _____ > Asthma Control, COPD

D. _____ > Asthma Control, COPD

E. _____ > Asthma Control, COPD

F. _____ > Overactive Bladder

II. Activity: Stim. _____; Bronchodilation

III. Adverse Effects: _____, _____, _____

Mixed Adrenergic Agonists

I. Drugs

A. _____ > _____

1. Banned as supplement (arrhythmias)

B. _____ > _____

1. Used for _____ production

II. Action

A. Release _____ from nerve endings

B. Stim. _____ and _____ receptors

III. Adverse Effects

A. _____, _____, _____, _____

Non-Selective Alpha Blockers

I. Drugs

A. _____ > _____, _____

1. _____

2. _____

B. Phentolamine > _____, _____, _____

1. _____

2. Contraindicated in _____, _____

II. Action: Blocks _____ and _____

III. Adverse Effects

A. _____

Alpha-1 Blockers

I. Drugs

- A. _____ > HTN, PTSD (off-label)
 B. _____ > BPH, HTN
 C. _____ > BPH, HTN
 D. _____ > BPH, bladder outlet obstruction, Ureteral Stones
 E. _____ > BPH

II. Activity: _____

III. Adverse Effects: _____

(_____), _____

Nonselective Beta Blockers

I. Drugs

- A. _____ > _____,
 _____,

 B. _____ > Angina, HTN
 C. _____ > Chronic Open Angle
 Glaucoma

II. Activity: Blocks _____ and _____ receptors

III. Adverse Effects:

_____ (contraindicated in
 asthma/COPD), _____,
 _____,

Beta-1 Blockers

I. Drugs

- A. _____ > Angina, HTN, MI
 B. _____ > Chronic open angle
 glaucoma
 C. _____ > HTN, CHF
 D. _____ > Tachycardia,

 E. _____ > Angina, HTN, MI, CHF
 F. _____ > HTN

II. Activity: Blocks _____ receptors

III. Adverse Effects: _____

_____, _____
 _____, _____

Beta Blockers with Partial Agonist Activity

I. Drugs

- A. _____ > HTN, Angina, Ventricular
 Arrhythmias
 B. _____ > HTN

II. Activity: Blocks _____ and _____ receptors

but also _____

III. Adverse Effects: _____

_____, _____, _____

_____, _____

Nonselective β Blockers with Alpha-1 Blockade

Nonselective Beta Blockers

I. Drugs

- A. _____ > HTN (incl Preg), HTN
 Emergency
 B. _____ > Angina, HTN, LV
 dysfunction post MI

II. Activity: Blocks _____, _____, and
 _____ receptors

III. Adverse Effects:

_____ (contraindicated in
 asthma/COPD), Arrhythmias, Fatigue, Sexual
 Dysfunction, Depression,
