4.17: Glossary

Acetylcholine (ACh): Binds to both nicotinic receptors and muscarinic receptors in the PNS.

Adrenergic: Postganglionic neuron where neurotransmitters norepinephrine and epinephrine are released. Includes alpha (α) receptors and beta (β) receptors.

Adrenergic Agonist: Mimics the effects of the body’s natural SNS stimulation on alpha (α) and beta (β) receptors. Also called sympathomimetics.

Adrenergic Antagonist: Blocks the effects of the SNS receptors.

Anticholinergics: Inhibit acetylcholine (ACh), which allows the SNS to dominate. Also called parasympatholytics or muscarinic antagonists. Overall use is to relax smooth muscle.

Autonomic Nervous System: Controls cardiac and smooth muscle, as well as glandular tissue; associated with involuntary responses.

Catecholamines: Include norepinephrine, epinephrine, and dopamine. Stimulate the adrenergic receptors.

Central Nervous System (CNS): Anatomical division of the nervous system located within the cranial and vertebral cavities, namely the brain and spinal cord.

Cholinergic: Postganglionic neuron where acetylcholine (ACh) is released that stimulates nicotinic receptors and muscarinic receptors. Also relating to drugs that inhibit, enhance, or mimic the action of ACh.

Chronotropic: Drugs may change the heart rate and rhythm by affecting the electrical conduction system of the heart and the nerves that influence it, such as by changing the rhythm (increasing) produced by the sinoatrial node. Positive
chronotropes increase heart rate; negative chronotropes decrease heart rate.

**Dromotropic**: Stimulation causes increases speed of conduction between SA and AV node.

**Fight-or-Flight Response**: The response when the SNS is stimulated, causing the main effects of increased heart rate, increased blood pressure, and bronchodilation.

**Glyconeogenesis**: The breakdown of glycogen into glucose, causing elevated blood glucose.

**Homeostasis (in ANS)**: Balance between the SNS and PNS. At each target organ, dual innervation determines activity. For example, SNS stimulation causes the heart rate to increase, whereas PNS stimulation causes the heart rate to decrease.

**Hyperglycemia**: Elevated blood glucose.

**Inotropic**: Stimulation causes increased force of contraction.

**Involuntary Responses**: Responses that the brain controls without the need for conscious thought.

**Motor Neurons**: Consist of the somatic nervous system that stimulates voluntary movement of muscles and the autonomic nervous system that controls involuntary responses.

**Muscarinic Agonists**: Also called parasympathomimetics. Primarily cause smooth muscle contraction, resulting in decreased HR, bronchoconstriction, increased gastrointestinal/genitourinary tone, and pupil constriction.

**Neurons**: Cells that carry electrical impulses to the synapse of a target organ.

**Nonselective Beta Blockers**: Medications that block both Beta-1 and Beta-2 receptors, thus affecting both the heart and lungs.

**Parasympathetic Division (PNS)**: Includes nerves outside the brain and spinal cord. Associated with the "rest and digest" response. Stimulation of PNS causes decreased heart rate, decreased blood pressure via vasodilation, bronchial constriction, and stimulates intestinal motility, salivation, and relaxation of the bladder.

**Parasympatholytics**: Inhibit acetylcholine (ACh), which allows the SNS to dominate. Also called anticholinergics or muscarinic antagonists.

**Parasympathomimetics**: Also called muscarinic agonists. Primarily cause smooth muscle contraction, resulting in decreased HR, bronchoconstriction, increased GI/GU tone, and pupil constriction.

**Peripheral Nervous System (PNS)**: An anatomical division of the nervous system that is largely outside the cranial and vertebral cavities, namely all parts except the brain and spinal cord.

**Postganglionic Neurons**: Differ for the SNS and PNS branches. Postganglionic neurons of the autonomic system are classified as either cholinergic, meaning that acetylcholine (ACh) is released, or adrenergic, meaning that norepinephrine is released.
**Preganglionic Neurons:** All preganglionic neurons (in the SNS and PNS) release acetylcholine (ACh).

**Selective Beta Blocker:** Medications that mostly inhibit B1 receptors.

**Sensory Neurons:** Sense the environment and conduct signals to the brain that become a conscious perception of that stimulus.

“**SLUDGE**”: Mnemonic for the effects of anticholinergics: **S**alivation decreased, **L**acrimation decreased, **U**rinary retention, **D**rowsiness/dizziness, **G**I upset, **E**yes (blurred vision/dry eyes).

**Somatic Nervous System:** Causes contraction of skeletal muscles; associated with voluntary responses.

**Sympathetic Division (SNS):** Associated with the “fight-or-flight response.” Stimulation causes the main effects of increased heart rate, increased blood pressure via the constriction of blood vessels, and bronchodilation.

**Sympathomimetics:** Mimic the effects of the body’s natural SNS stimulation of adrenergic receptors. Also called adrenergic agonists.

**Synapse:** The connection between the neuron and its target cell.