

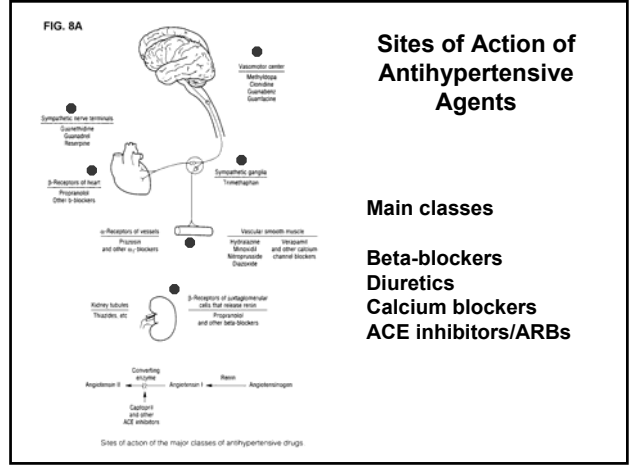
Pharmacology of the Cardiovascular System

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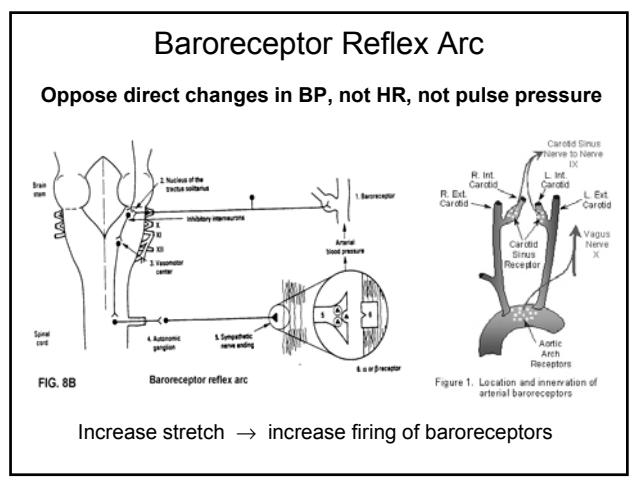
Sites of Action of Antihypertensive Agents

Main classes

- Beta-blockers
- Diuretics
- Calcium blockers
- ACE inhibitors/ARBs

Systolic – Diastolic Blood Pressure

Normal: 120/80 mmHg



Cardiovascular - 1

Blood Pressure = Cardiac Output X TPR
Cardiac Output = Heart rate X Stroke volume

Receptor	Response	Effect
alpha ₁	vasoconstriction	↑ TPR ↑ BP
beta ₁	↑ heart rate	↑ CO ↑ BP
beta ₂ **	vasodilation	↓ TPR ↓ BP
M ₂ (vagus)	↓ heart rate	↓ CO ↓ BP
M (vascular) **	vasodilation	↓ TPR ↓ BP

** not innervated

Cardiovascular - 2

Resting: BP 120/80 mmHg HR 70 bpm
No tone: BP 60/40 mmHg HR 75 bpm

	Resting	After ↑BP	After ↓BP
alpha ₁	++++	o	+++++
beta ₁	+	o	++
beta ₂	+	++	o
vagus	++	++++	o

Note: Athletic individual has low HR (high vagal tone)
Lance Armstrong resting HR 32 bpm

