

SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES



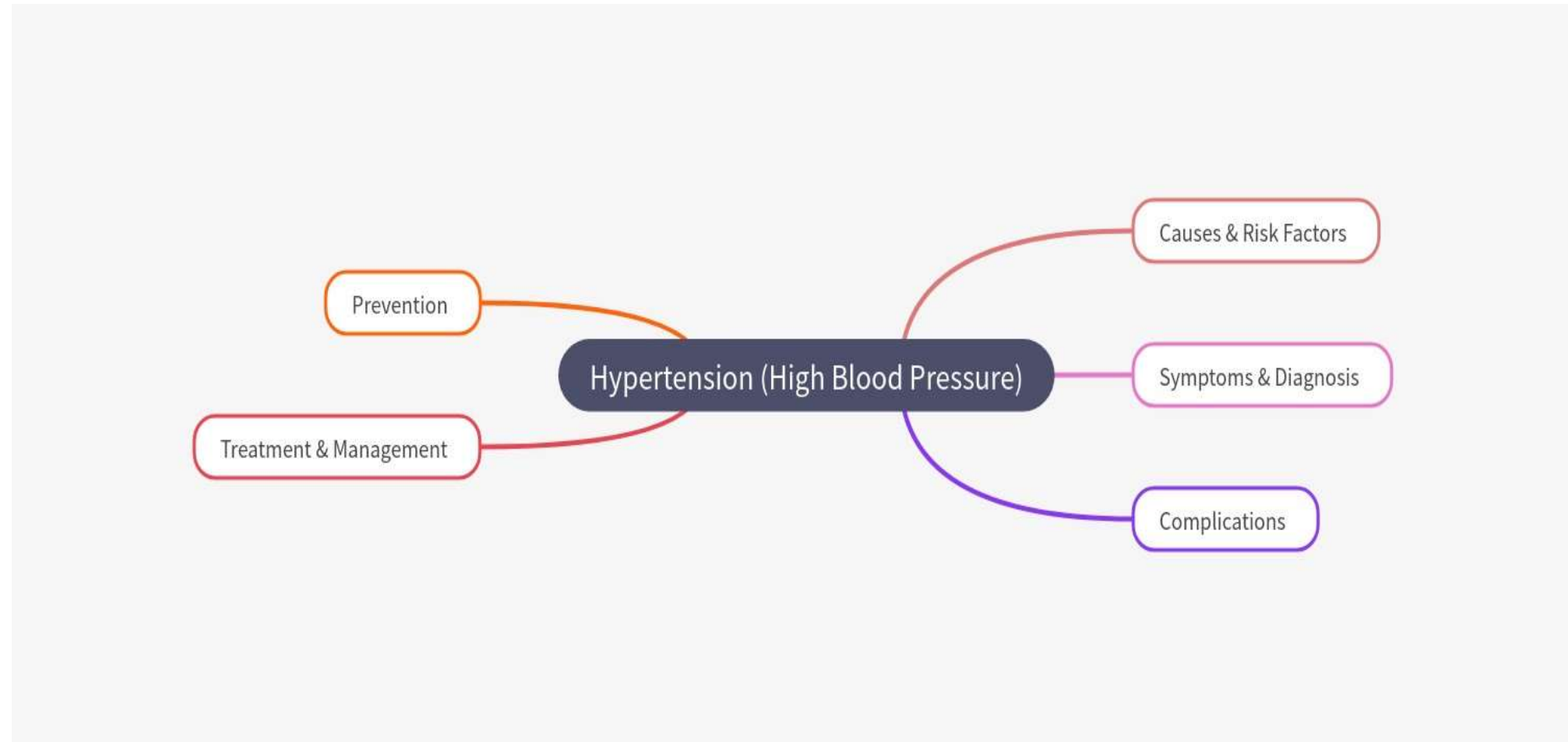
Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Approved by Pharmacy Council of India, New Delhi.
Coimbatore -641035

COURSE NAME : PHARMACOTHERAPEUTICS

II D. PHARM

TOPIC : HYPERTENSION

MINDMAP FOR HYPERTENSION



Hypertension

Hypertension is usually not accompanied by symptoms and that's why it's called the silent killer. However, symptoms - if any appear - include:



Feeling dizzy

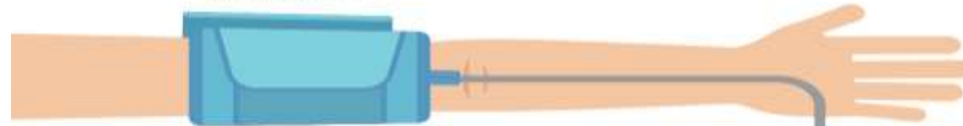


Rapid heartbeat



Severe headache

Hypertension is diagnosed through regularly measuring blood pressure



Diastolic blood pressure

less than 80

80-89

90-99

Higher than 100

Systolic blood pressure

less than 120

120-139

140-159

Higher than 160



Blood pressure level

Normal

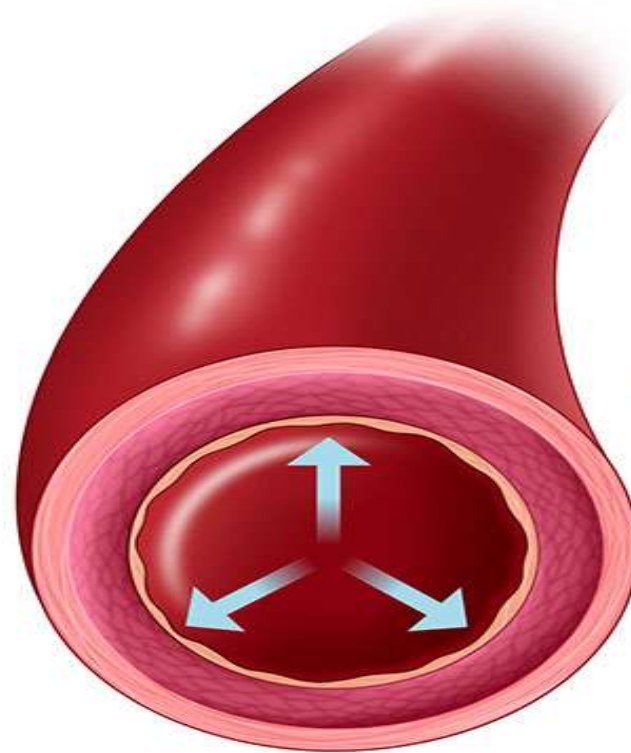
Prehypertension

Hypertension

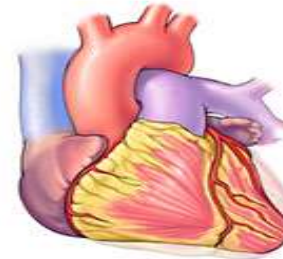
Hypertension Crisis

Hypertension

High blood pressure



■ Force of blood on artery wall



130+

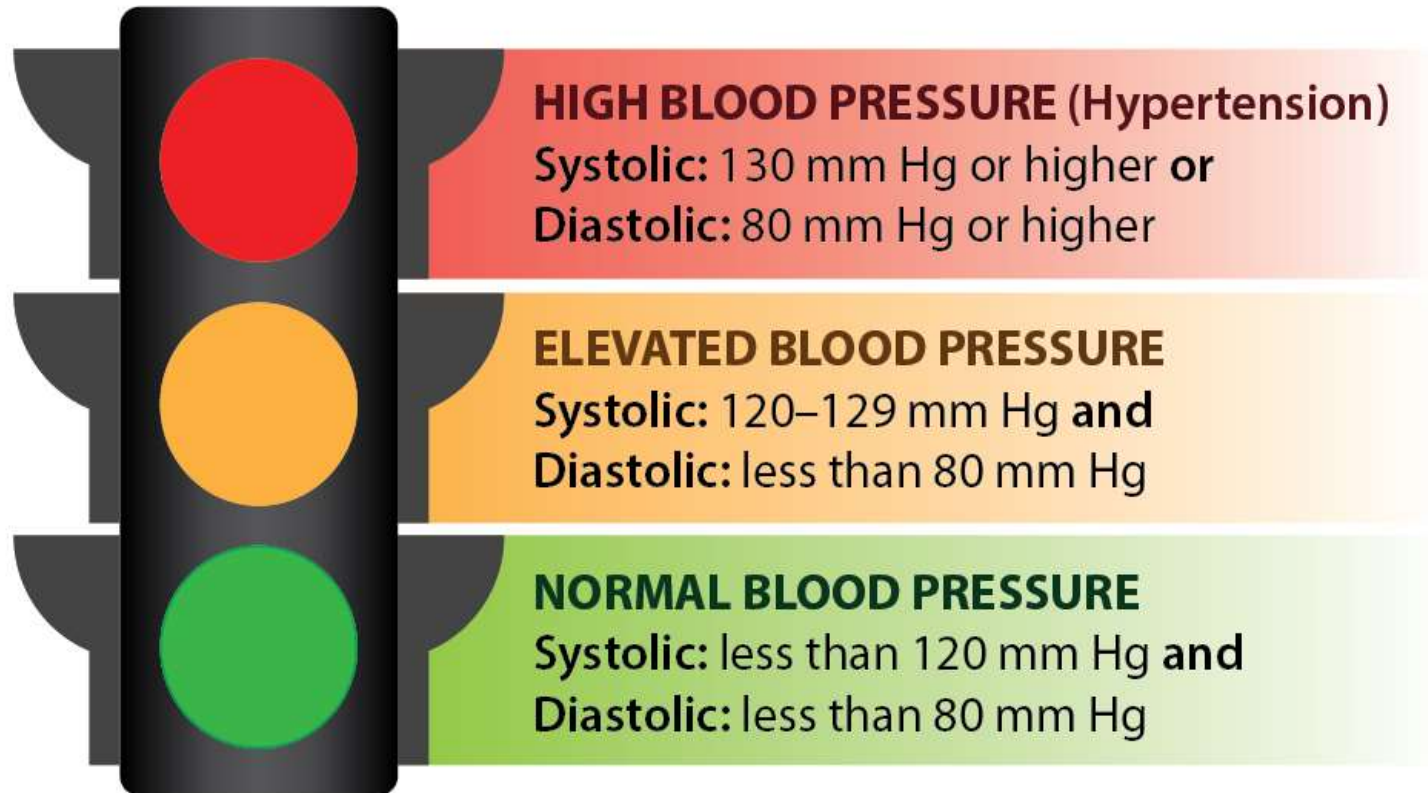
or

80+



Systolic number
is when the
heart contracts

Diastolic number
is when the
heart rests



Blood pressure above normal

Ranges are in **millimeters of mercury (mm)**

High blood pressure



140+
OR
90+

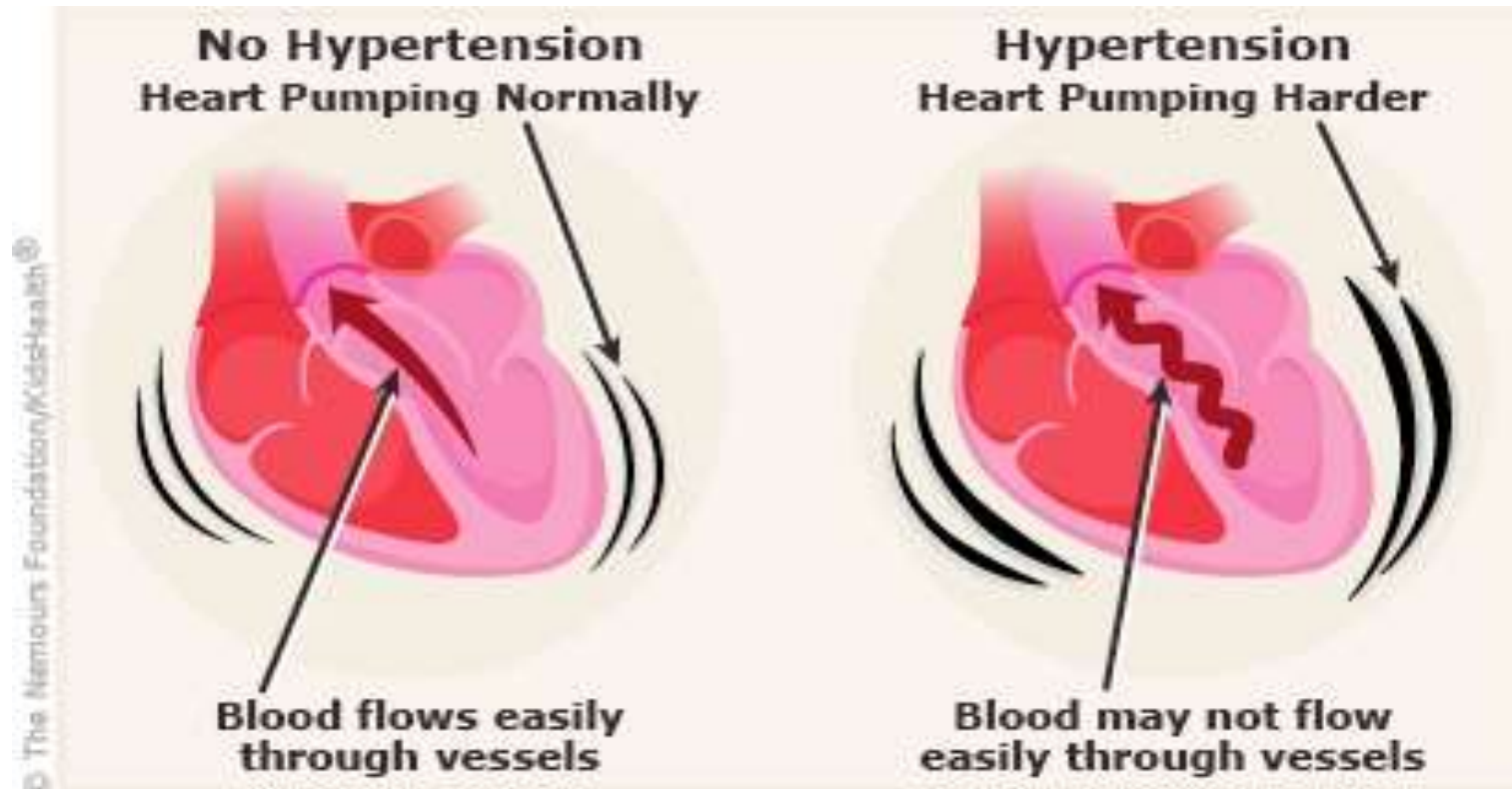
**Stage 2
Hypertension**

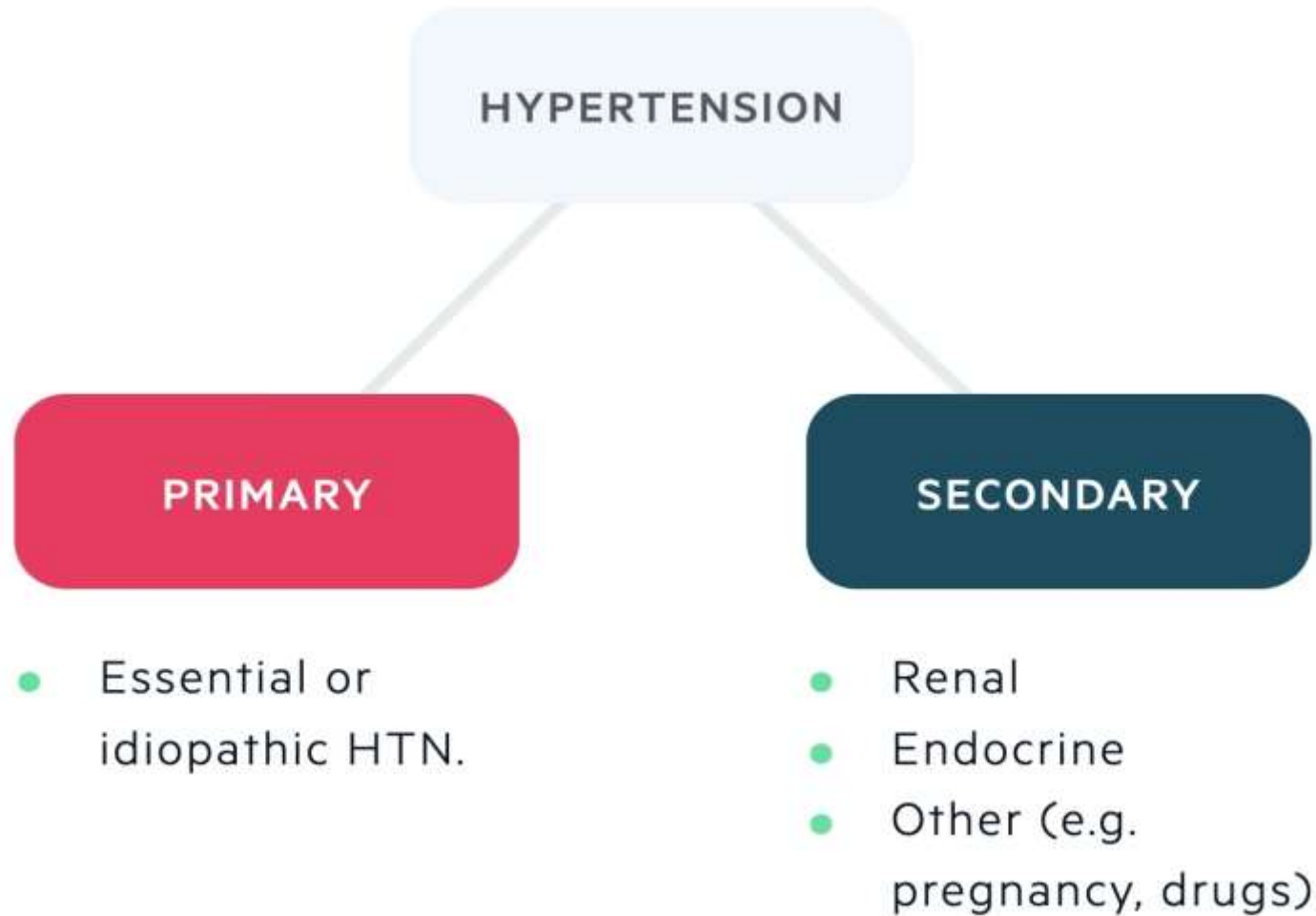
130-139
OR
80-89

**Stage 1
Hypertension**

120-129
AND
< 80

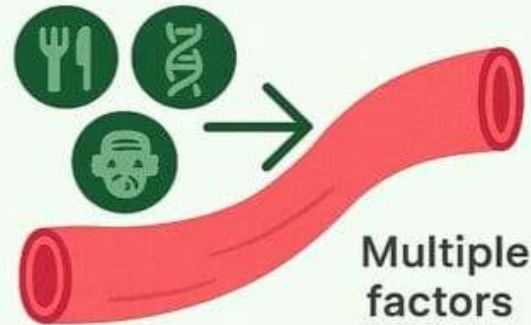
**Elevated
Blood
Pressure**



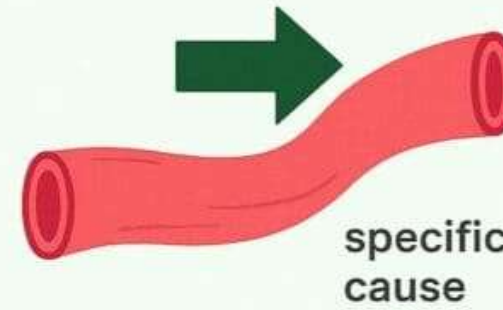


Primary vs. Secondary Hypertension

PRIMARY HYPERTENSION (90-95% of cases)



SECONDARY HYPERTENSION (5-10% of cases)



	Prevalence	Onset	Treatment
Prevalence	Common	Less common	Sudden
Onset	Gradual	Sudden	Specific cause
Causes Approach	Multiple factors	Lifestyle changes	Treat underlying cause

Signs & Symptoms of Hypertension



HEADACHE
VISUAL CHANGES



CHEST PAIN
DYSPOEA



FREQUENTLY
ASYMPTOMATIC



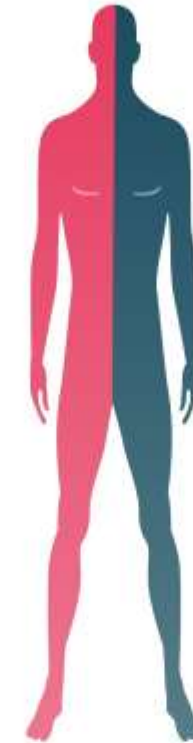
HYPERTENSIVE
RETINOPATHY



CARDIOMEGALY
ARRHYTHMIAS

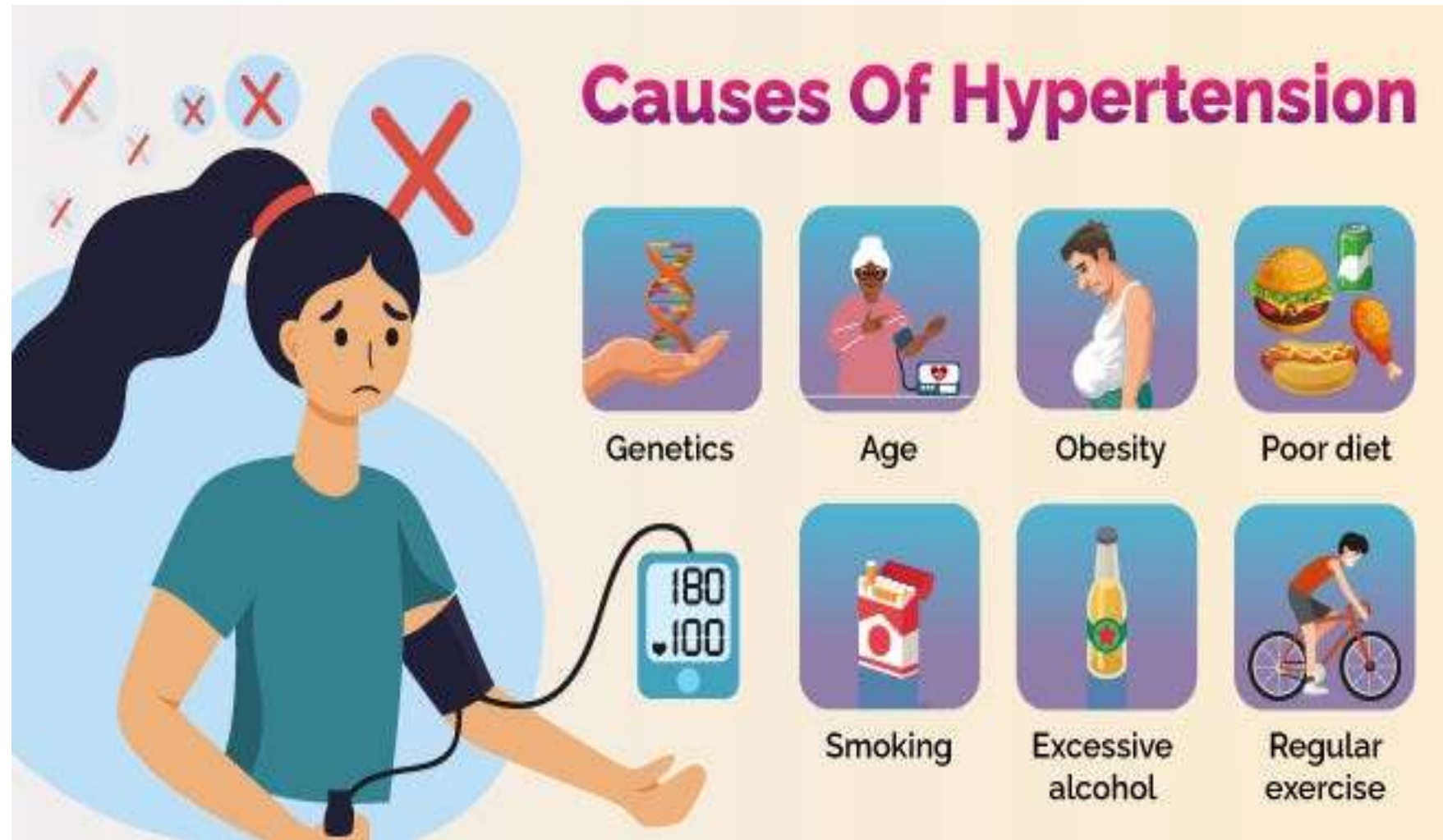


PROTEINURIA

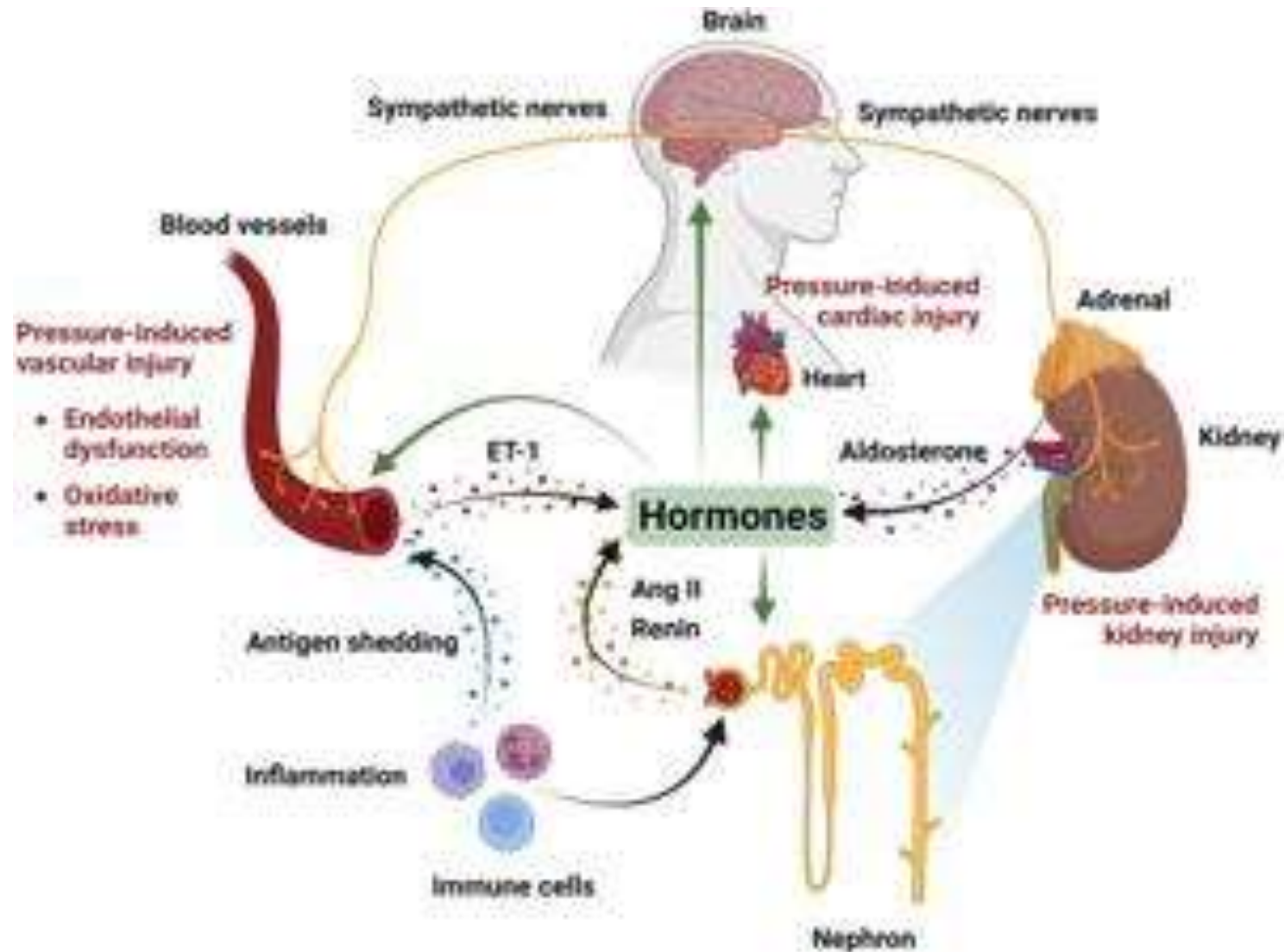


SYMPTOMS

SIGNS



PATHOPHYSIOLOGY



Main complications of persistent High blood pressure

Brain:

- Cerebrovascular accident (*strokes*)
- Hypertensive encephalopathy:
 - confusion*
 - headache*
 - convulsion*

Retina of eye:

- Hypertensive retinopathy

Heart:

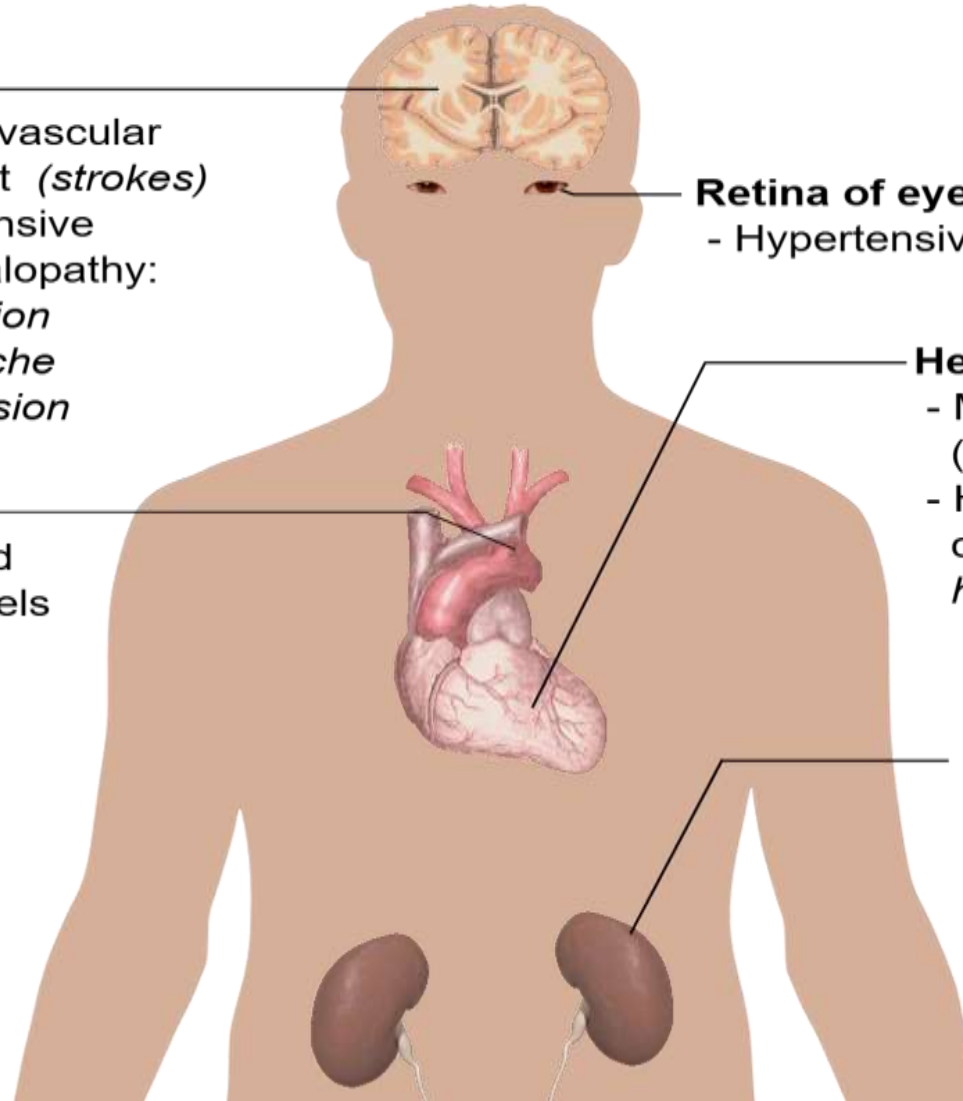
- Myocardial infarction (heart attack)
- Hypertensive cardiomyopathy:
heart failure

Blood:

- Elevated sugar levels

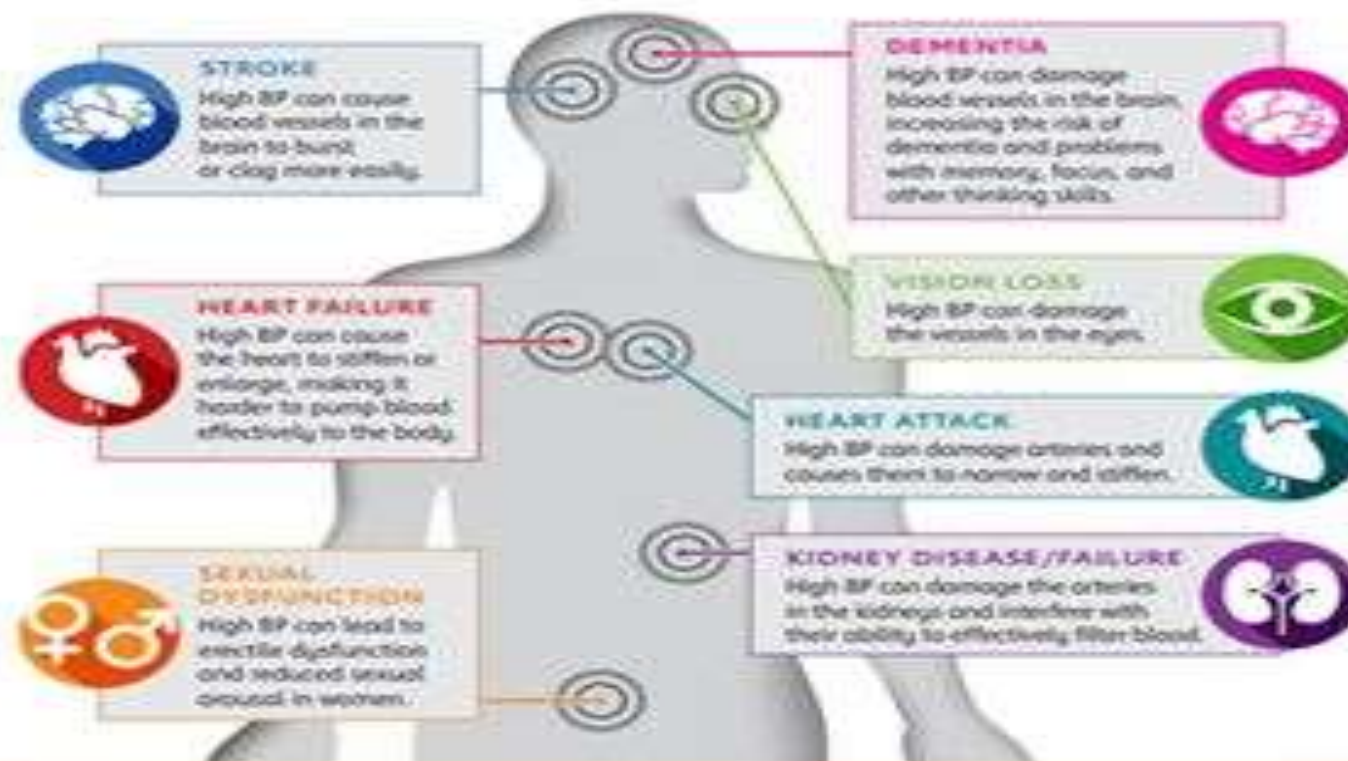
Kidneys:

- Hypertensive nephropathy:
chronic renal failure

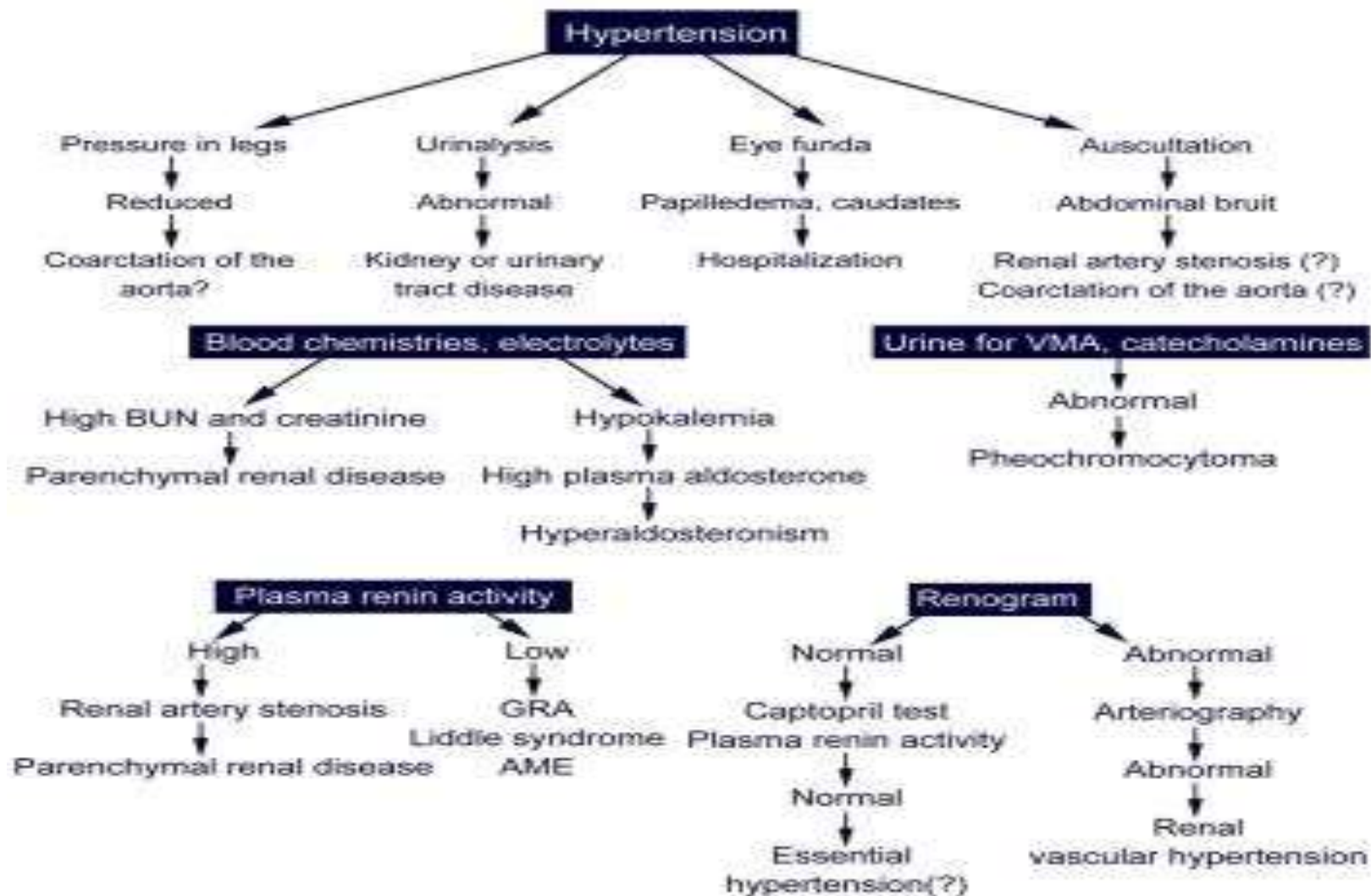


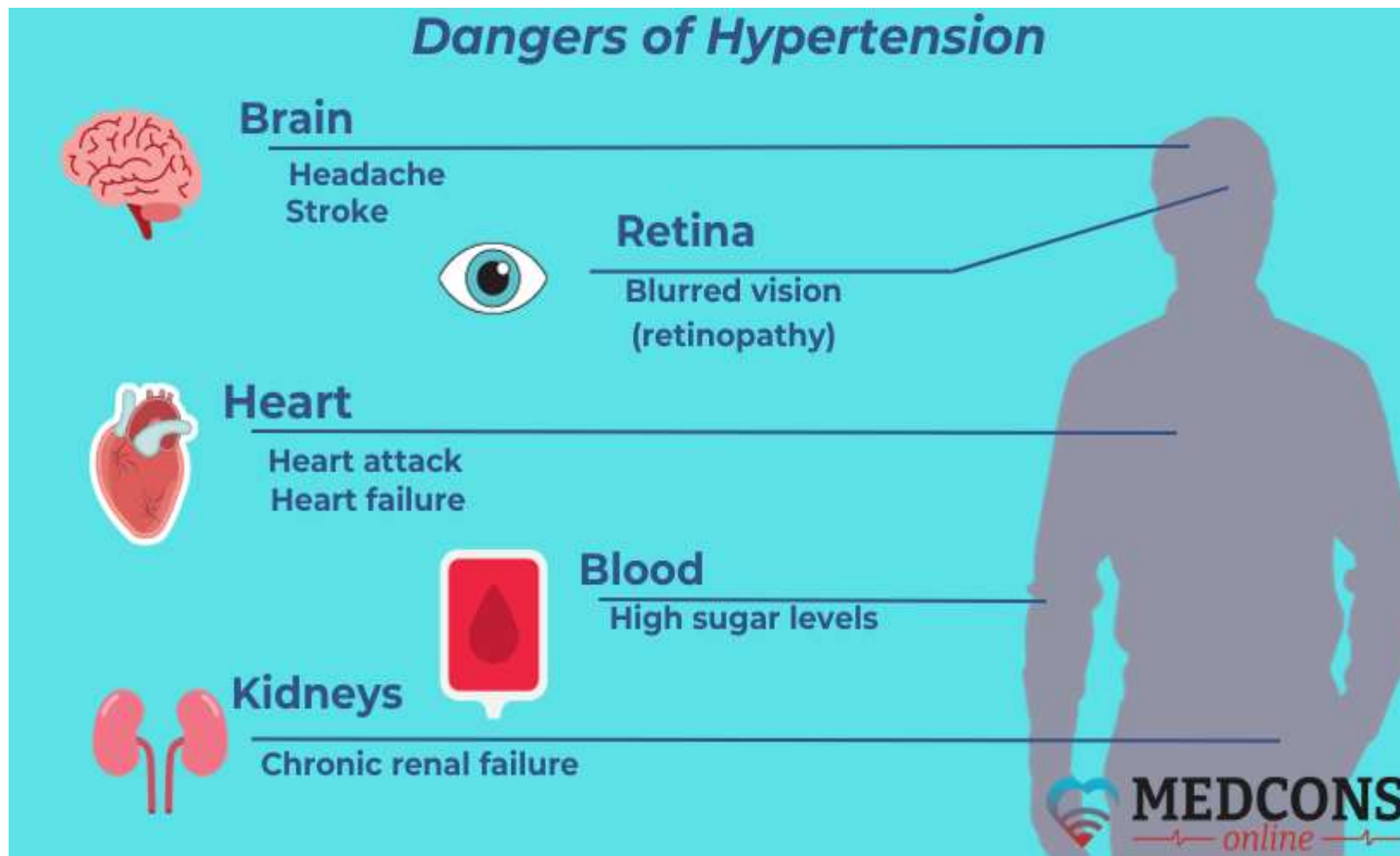
Consequences of High Blood Pressure

High blood pressure (BP) can cause other health problems, like:

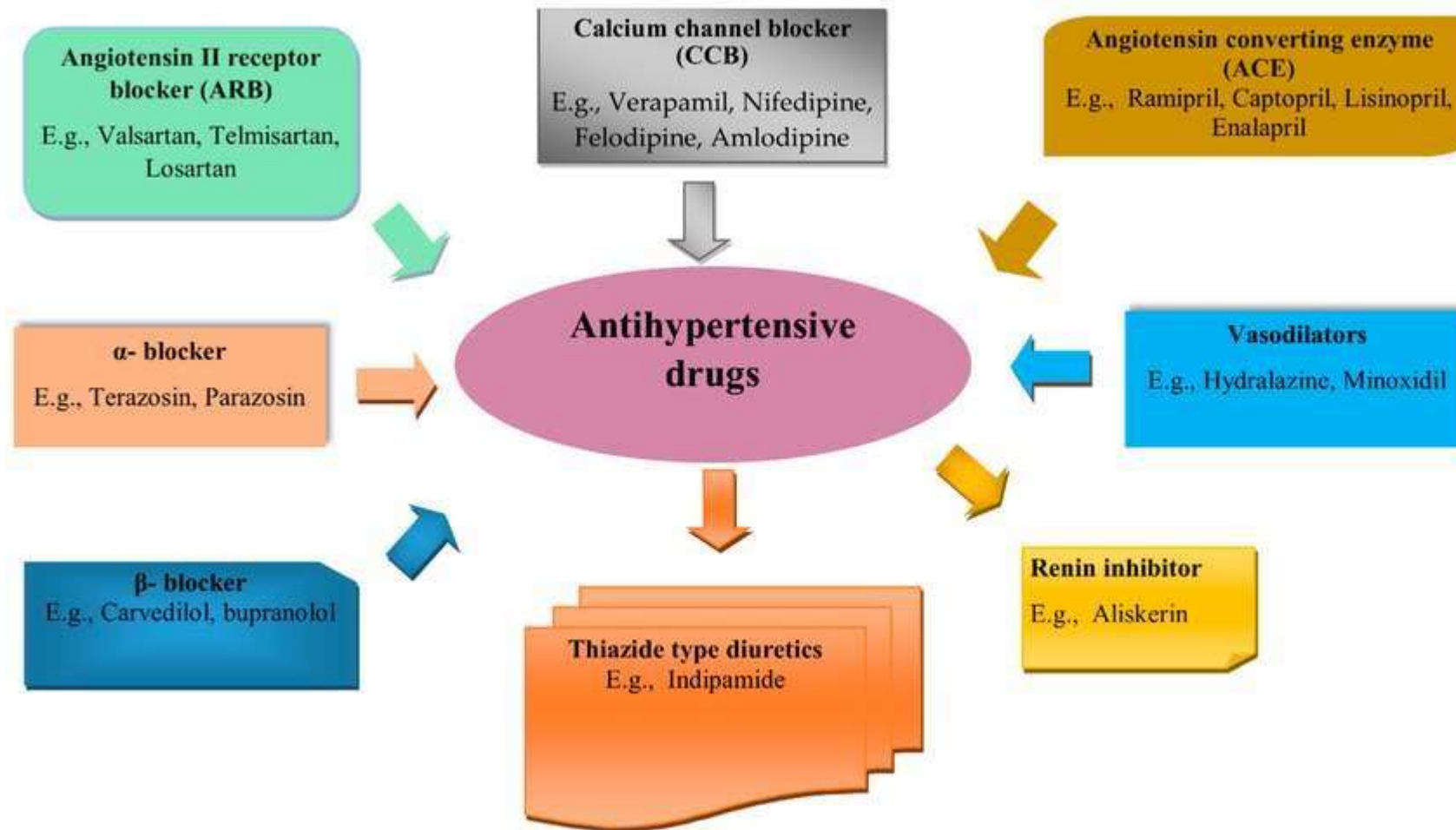


A healthy blood pressure helps protect your kidneys, heart, and your body's ability to use energy (metabolic health). Check your blood pressure today. Learn more at heart.org/BP.

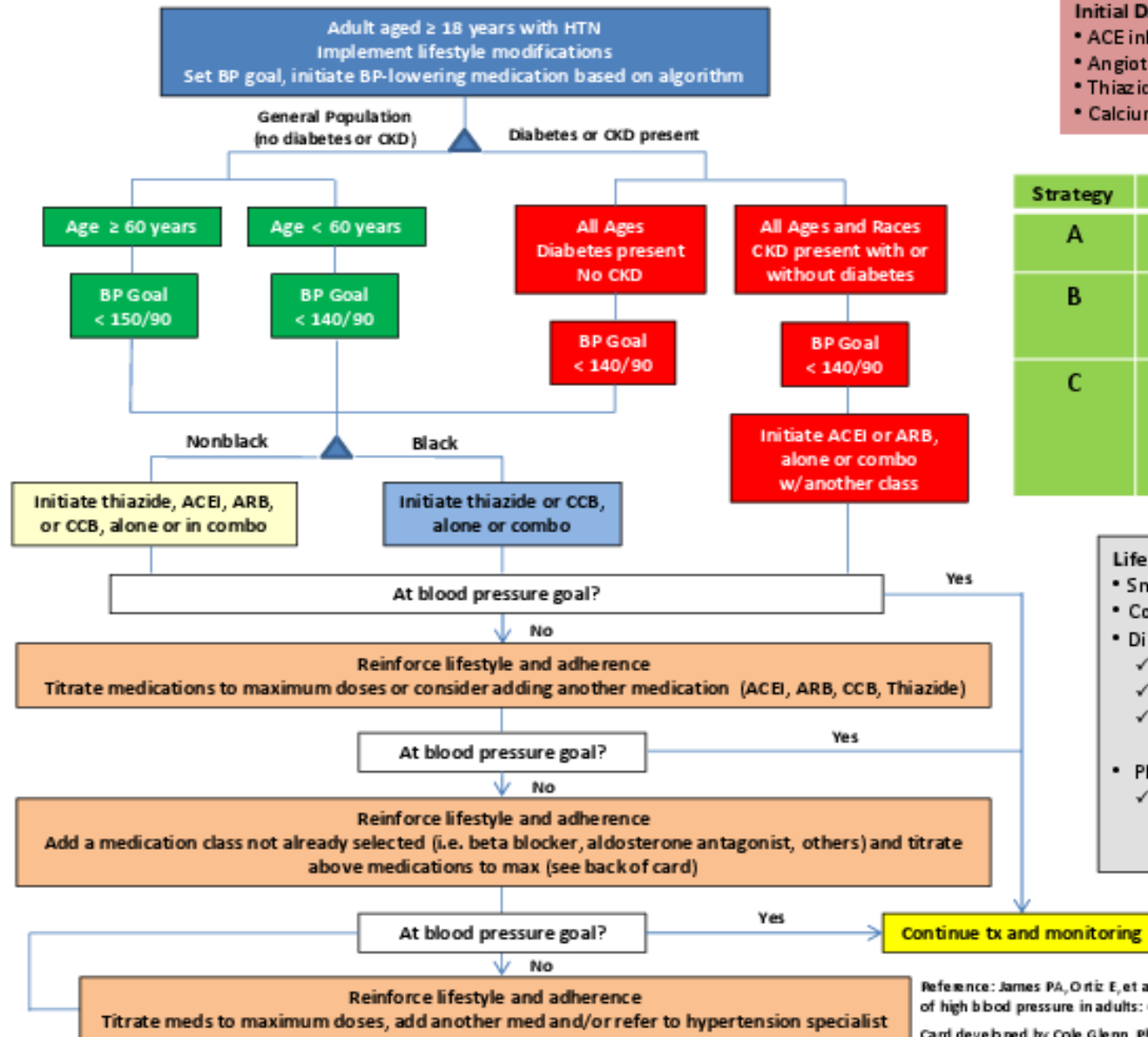




DRUGS



JNC 8 Hypertension Guideline Algorithm



Initial Drugs of Choice for Hypertension

- ACE inhibitor (ACEI)
- Angiotensin receptor blocker (ARB)
- Thiazide diuretic
- Calcium channel blocker (CCB)

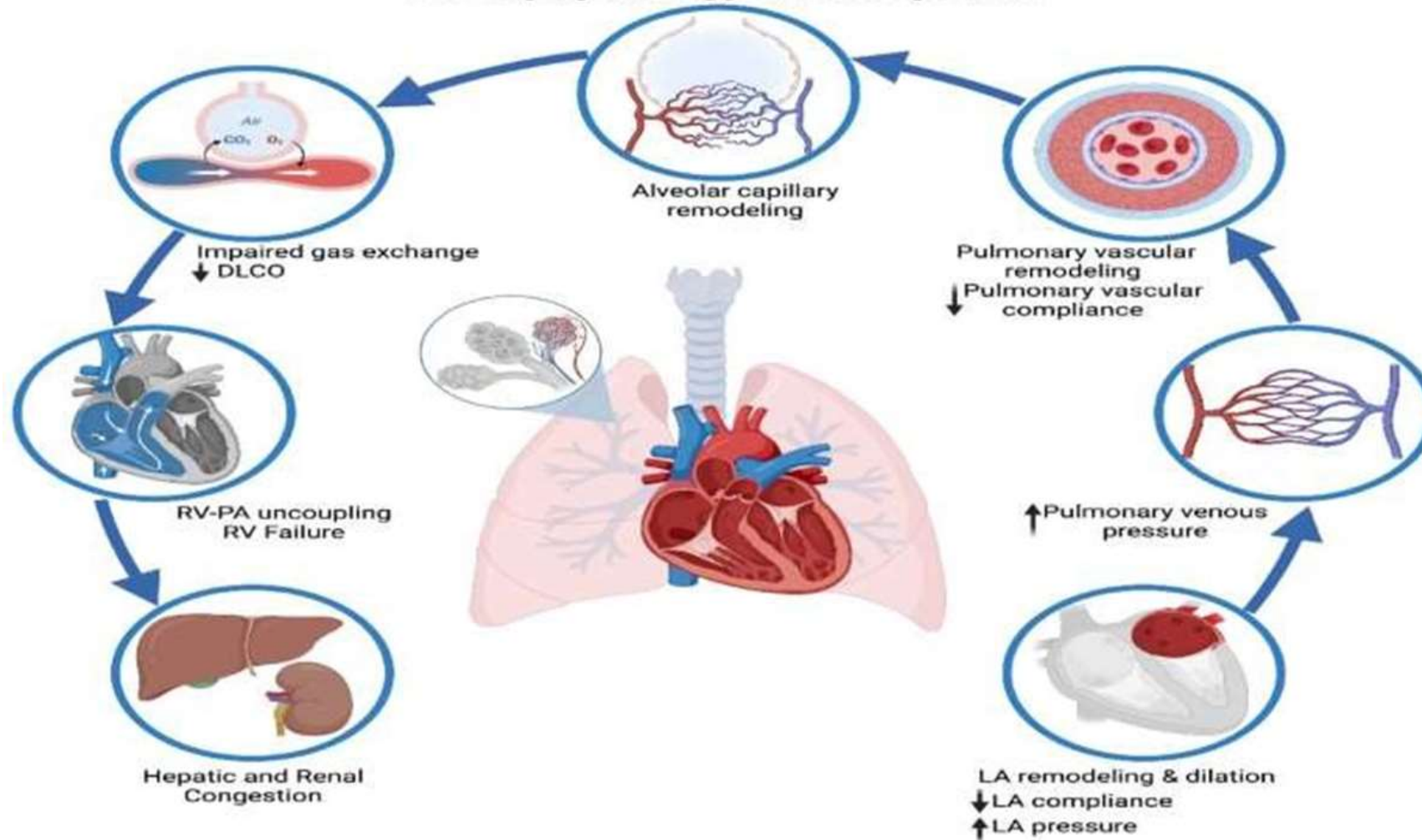
Strategy	Description
A	Start one drug, titrate to maximum dose, and then add a second drug.
B	Start one drug, then add a second drug before achieving max dose of first
C	Begin 2 drugs at same time, as separate pills or combination pill. Initial combination therapy is recommended if BP is greater than 20/10mm Hg above goal

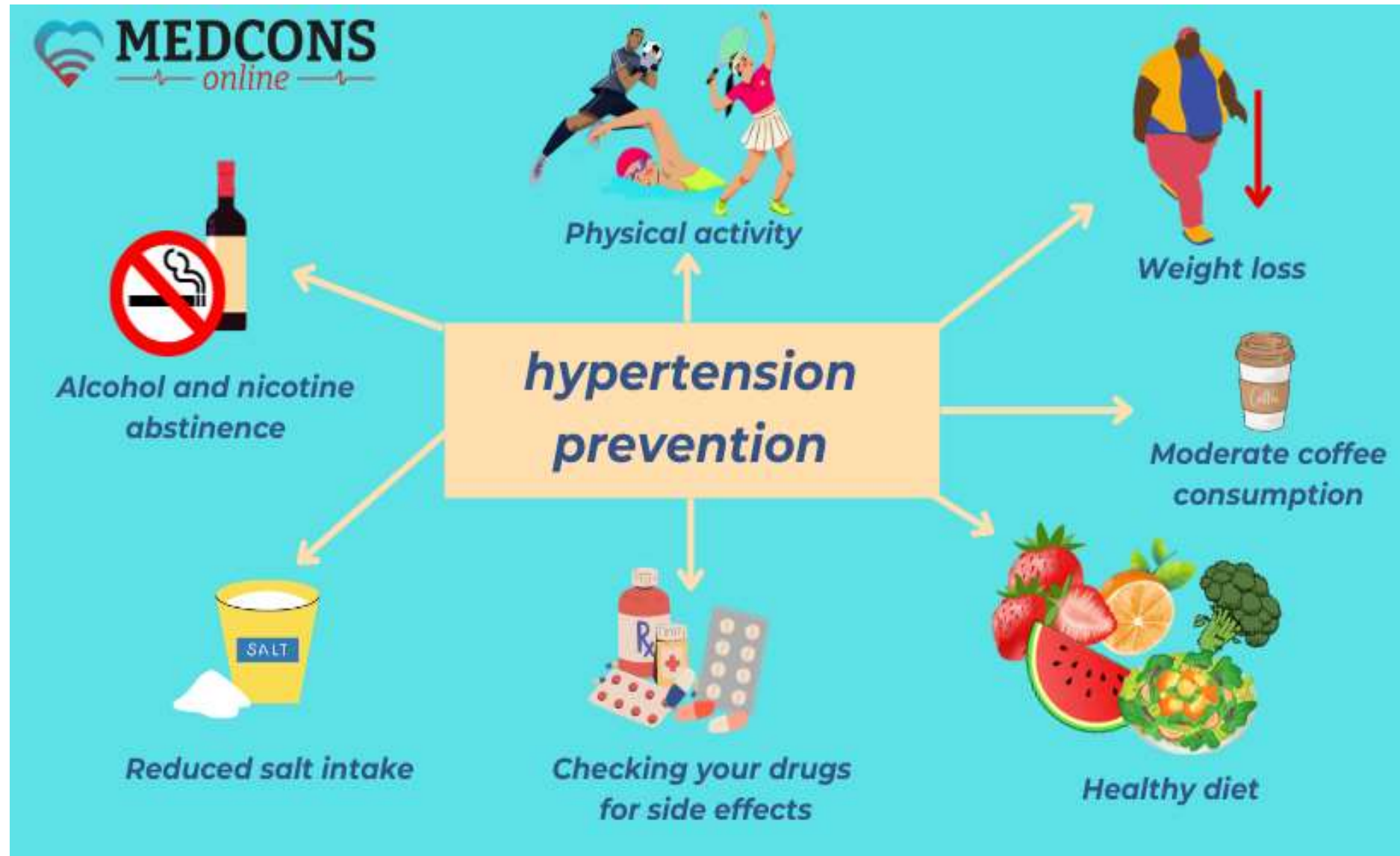
Lifestyle changes:

- Smoking Cessation
- Control blood glucose and lipids
- Diet
 - ✓ Eat healthy (i.e., DASH diet)
 - ✓ Moderate alcohol consumption
 - ✓ Reduce sodium intake to no more than 2,400 mg/day
- Physical activity
 - ✓ Moderate-to-vigorous activity 3-4 days a week averaging 40 min per session.

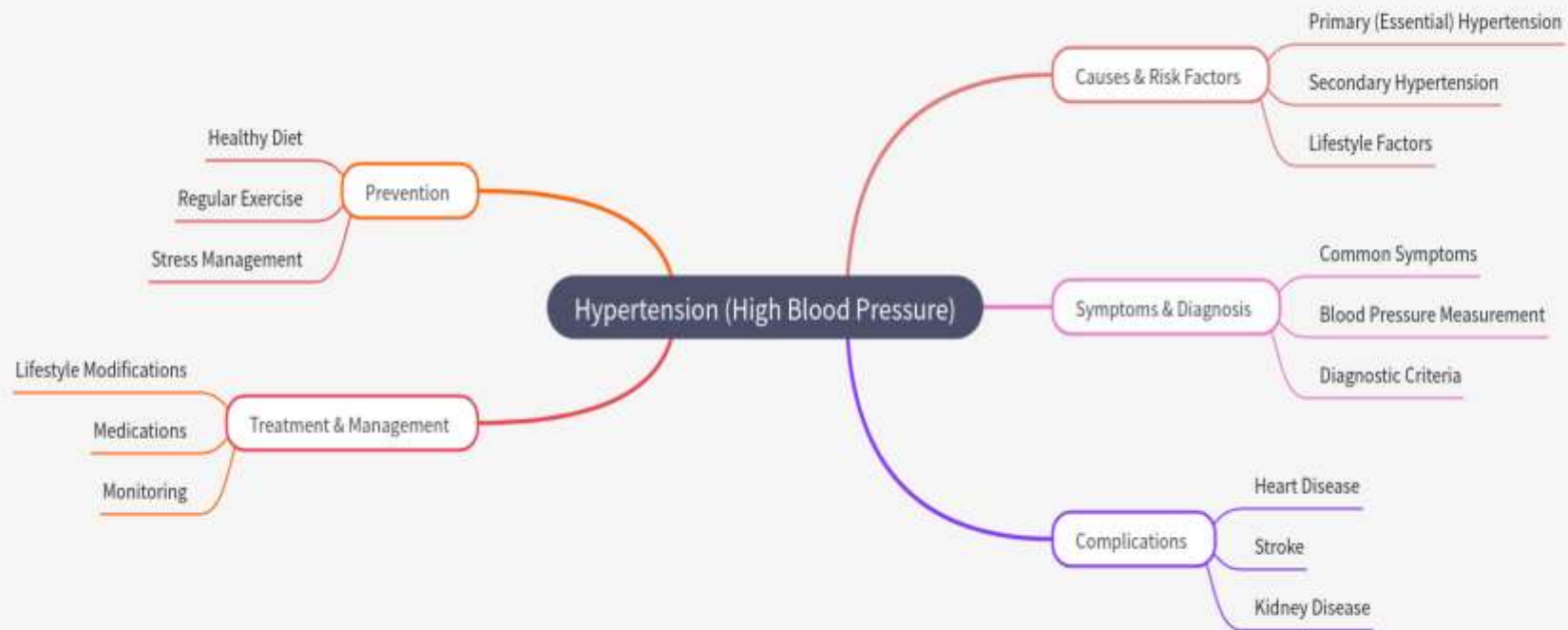
Reference: James PA, Ortiz E, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: (JNC8). JAMA. 2014 Feb 5;311(5):507-20
Card developed by Cole Glenn, Pharm.D. & James L Taylor, Pharm.D.

Post-Capillary Pulmonary Hypertension Pathophysiology and Sequelae





SUMMARY



ASSESSMENTS



- 1. High blood pressure means that blood has difficulty reaching the heart.**

A True
B False



2. Blood pressure refers to the force of blood pushing against:

-



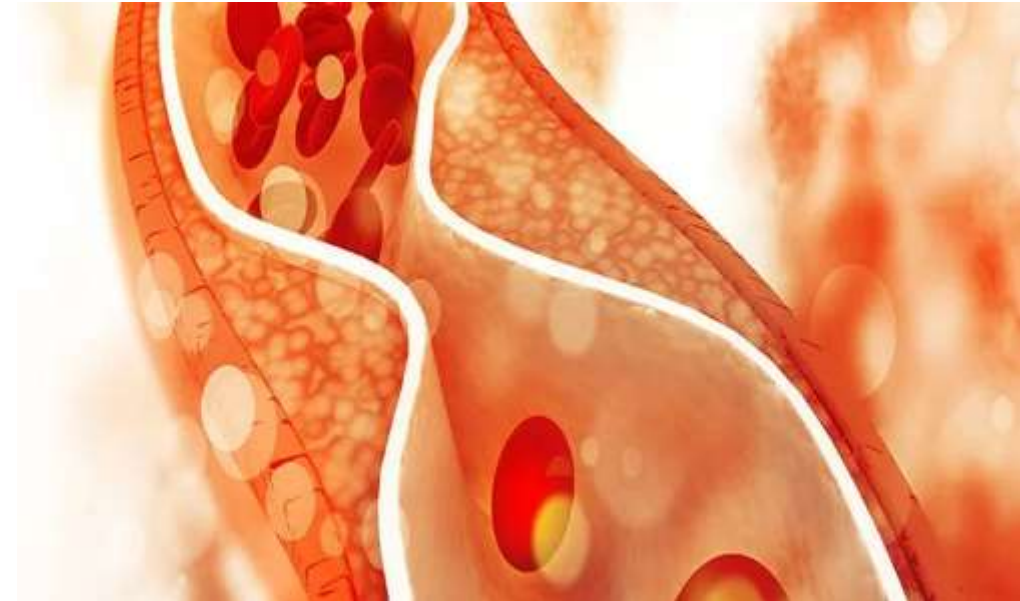
- A** The heart
- B** Artery walls
- C** The brain
- D** Capillaries





3. What happens in the body when blood pressure is high?

- A** Walls of arteries gets stretched and damaged
- B** The body suffers a series of mild heart attacks





4. The two measurements of blood pressure determine...

- A** Artery pressure due to heartbeats
- B** Artery pressure between heartbeats
- C** High, low, or normal blood pressure
- D** All of the above



REFERENCES

1. SPRINT Research Group; Wright JT Jr, Williamson JD, Whelton PK, Snyder JK, Sink KM, et al. A randomized trial of intensive versus standard blood-pressure control. *N Engl J Med.* 2015;373(22):2103–16. doi:10.1056/NEJMoa1511939. ([PubMed][2])
2. NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. *Lancet.* 2021;398(10304):957–80. doi:10.1016/S0140-6736(21)01330-1. ([PubMed][3])
3. Muntner P, Shimbo D, Carey RM, et al. Measurement of blood pressure in humans: a scientific statement from the American Heart Association. *Hypertension.* 2019;73:e35–66. ([hypertension.ca][1])
4. Ishigami J, Charleston J, Miller ER III, et al. Effects of cuff size on the accuracy of blood pressure readings: the Cuff(SZ) randomized crossover trial. *JAMA Intern Med.* 2023;183:1061–8. ([hypertension.ca][1])
5. Jaffe MG, Lee GA, Young JD, et al. Improved blood pressure control associated with a large-scale hypertension program. *JAMA.* 2013;310:699–705. ([hypertension.ca][1])

*Thank
you!*