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

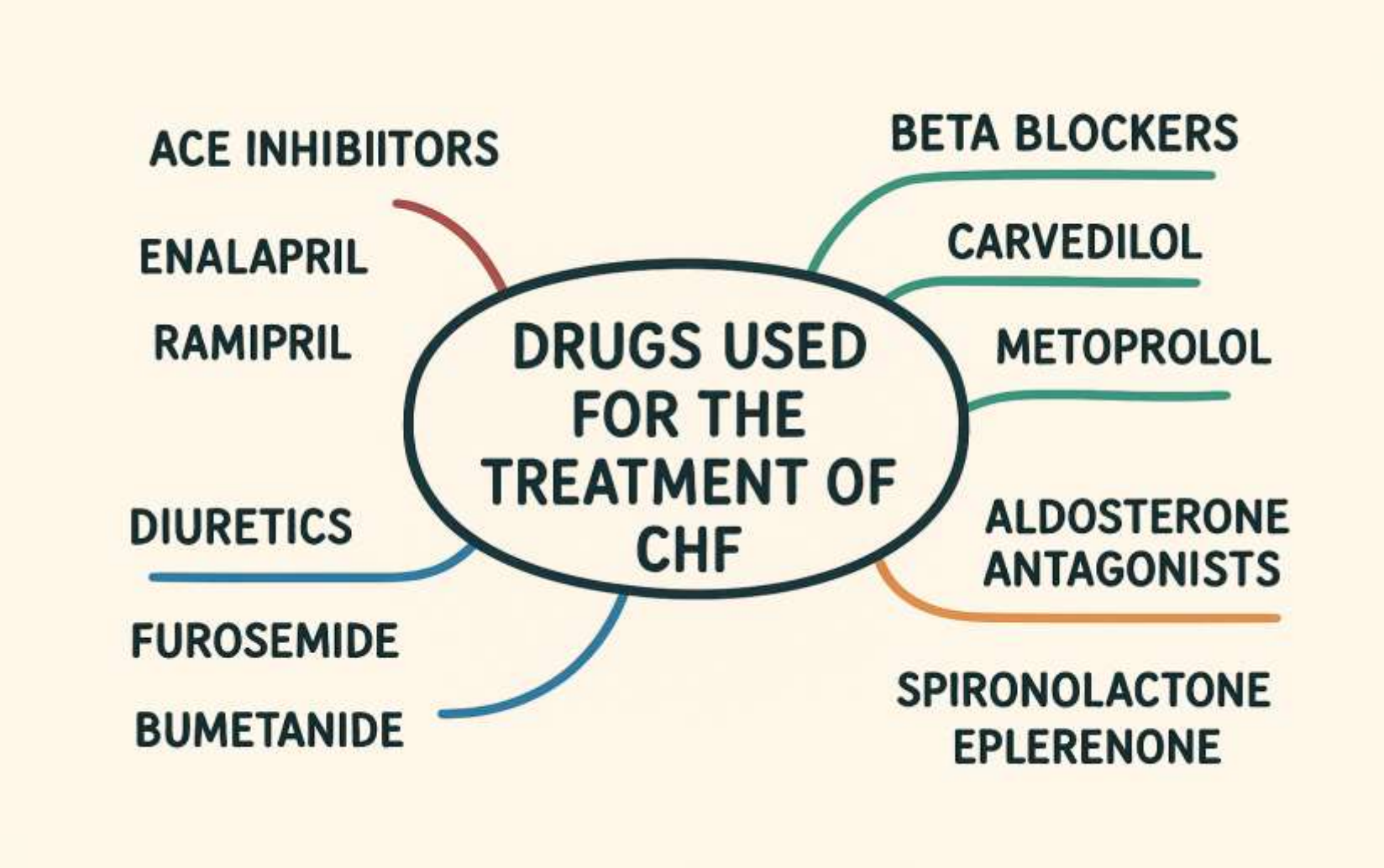
COURSE NAME- PHARMACOLOGY II (BP-503 T)

III YEAR / V SEMESTER

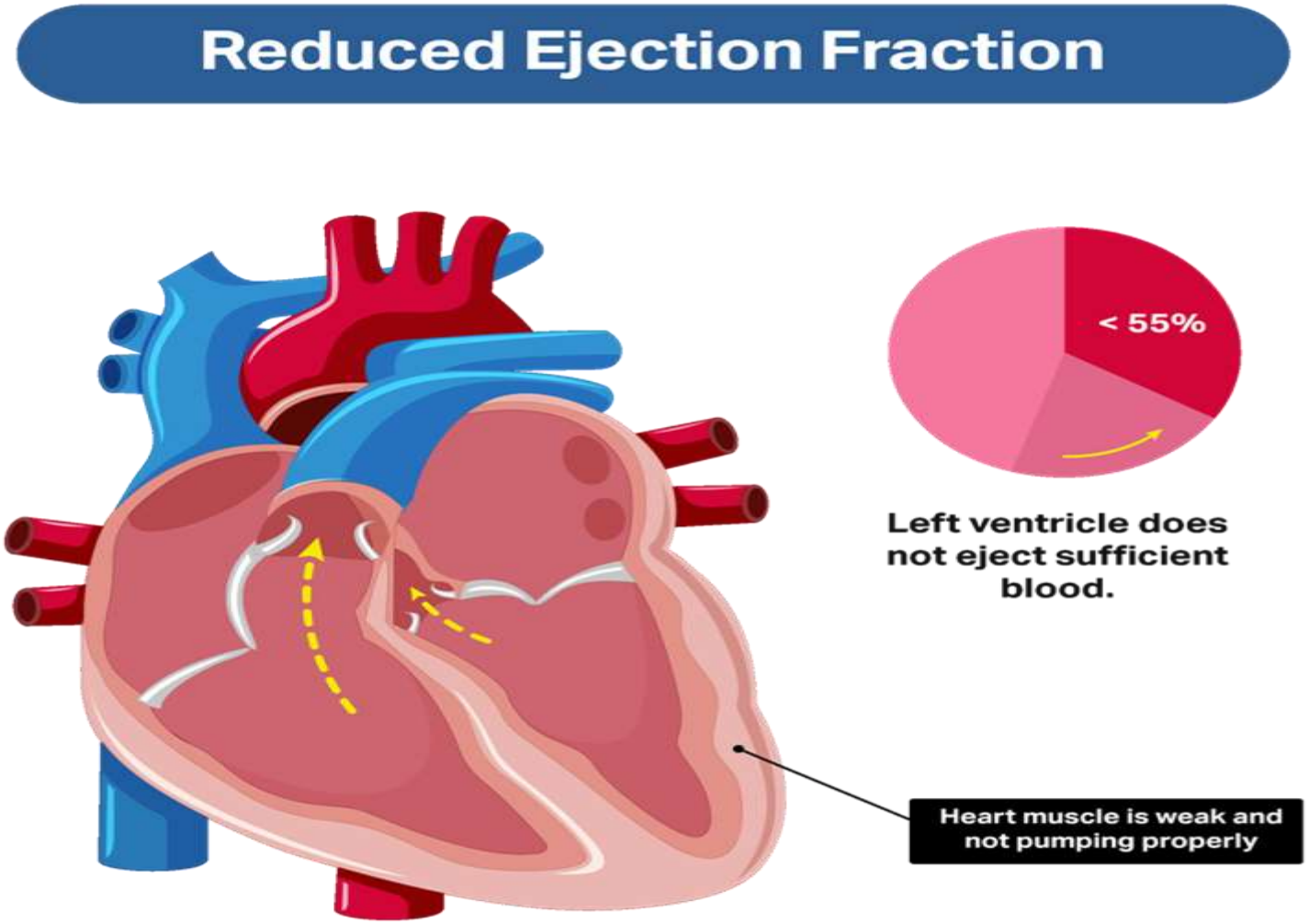
TOPIC 1: PHARMACOLOGY OF DRUGS ACTING ON CVS

SUB TOPIC: Drugs used in congestive heart failure

MIND MAP

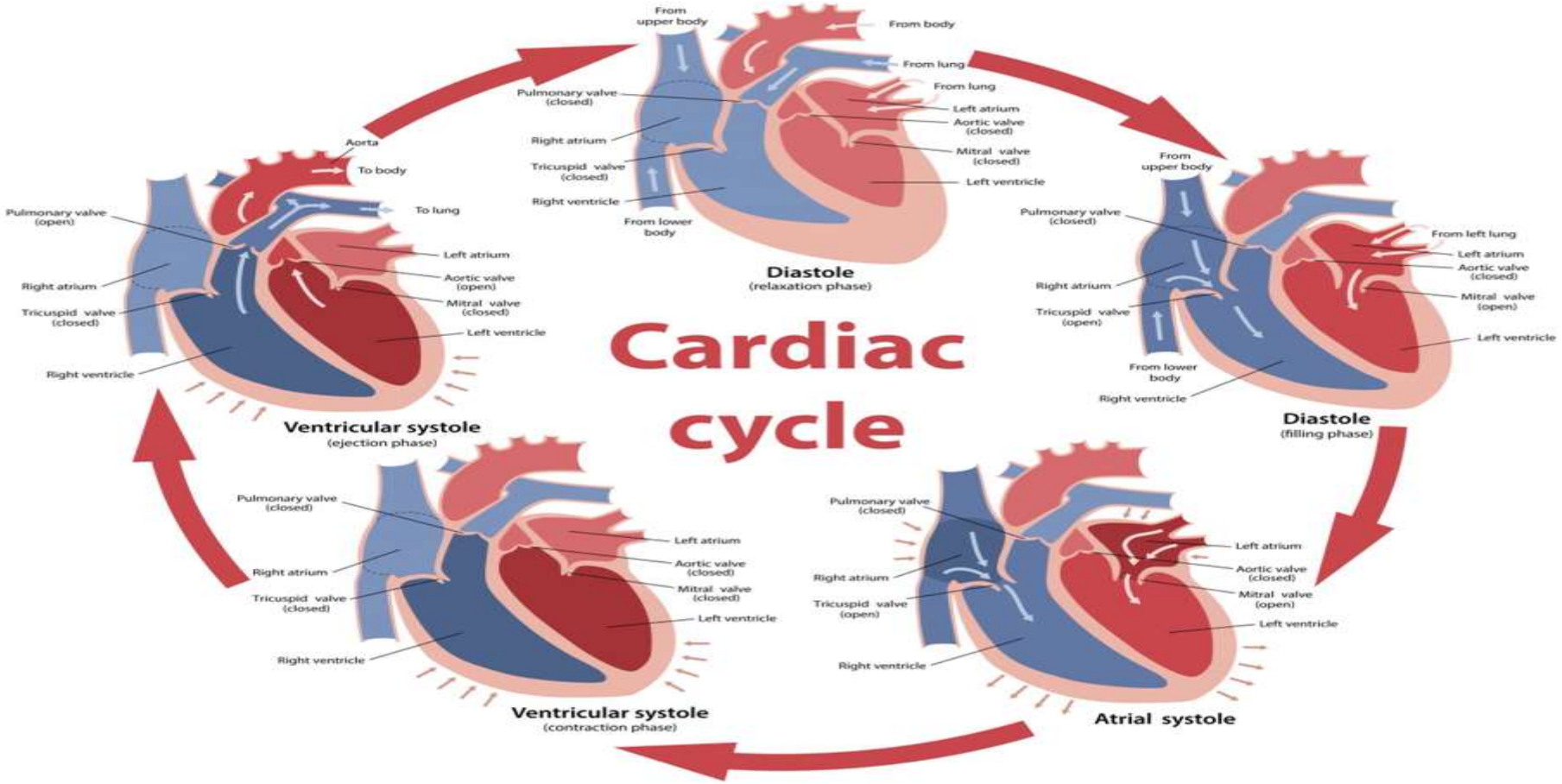

DRUGS USED FOR THE TREATMENT OF CHF
ACE INHIBIITORS
ENALAPRIL
RAMIPRIL
BETA BLOCKERS
CARVEDILOL
METOPROLOL
DIURETICS
FUROSEMIDE
BUMETANIDE
ALDOSTERONE ANTAGONISTS
SPIRONOLACTONE
EPLERENONE

Empathize: Understanding the Problem



Pathophysiology of CHF

Decreased cardiac output → Activation of RAAS → Sodium and water retention → Worsening of CHF



Clinical Needs of CHF Patients

Congestive Heart Failure

Treatment

General Measures

- Treat underlying cause or precipitating factors
- Diet modifications
  - Sodium restriction
  - Possible fluid restriction
- Adequate rest
- Mild exercise
- Alcohol/Smoking cessation
- Adequate oxygen
- Health maintenance
  - Vaccines, wellness checks

Medications

- Diuretics
- ACE Inhibitors
- Angiotensin Receptor Blockers (ARBs)
- Beta Blockers
- Cardiac Glycosides

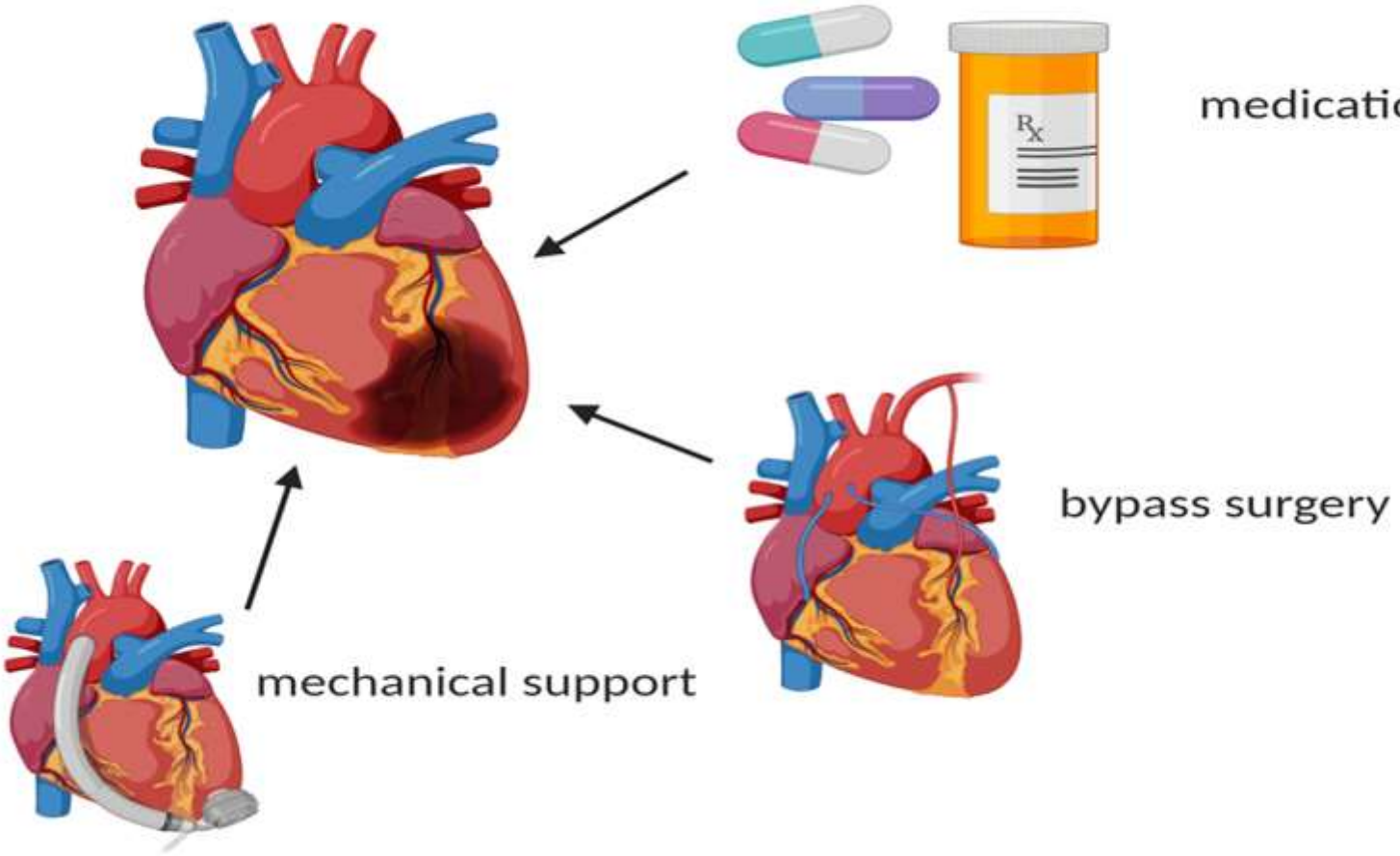
Surgical

- Revascularization
  - Angioplasty, CABG
- Valve Repair/Replacement

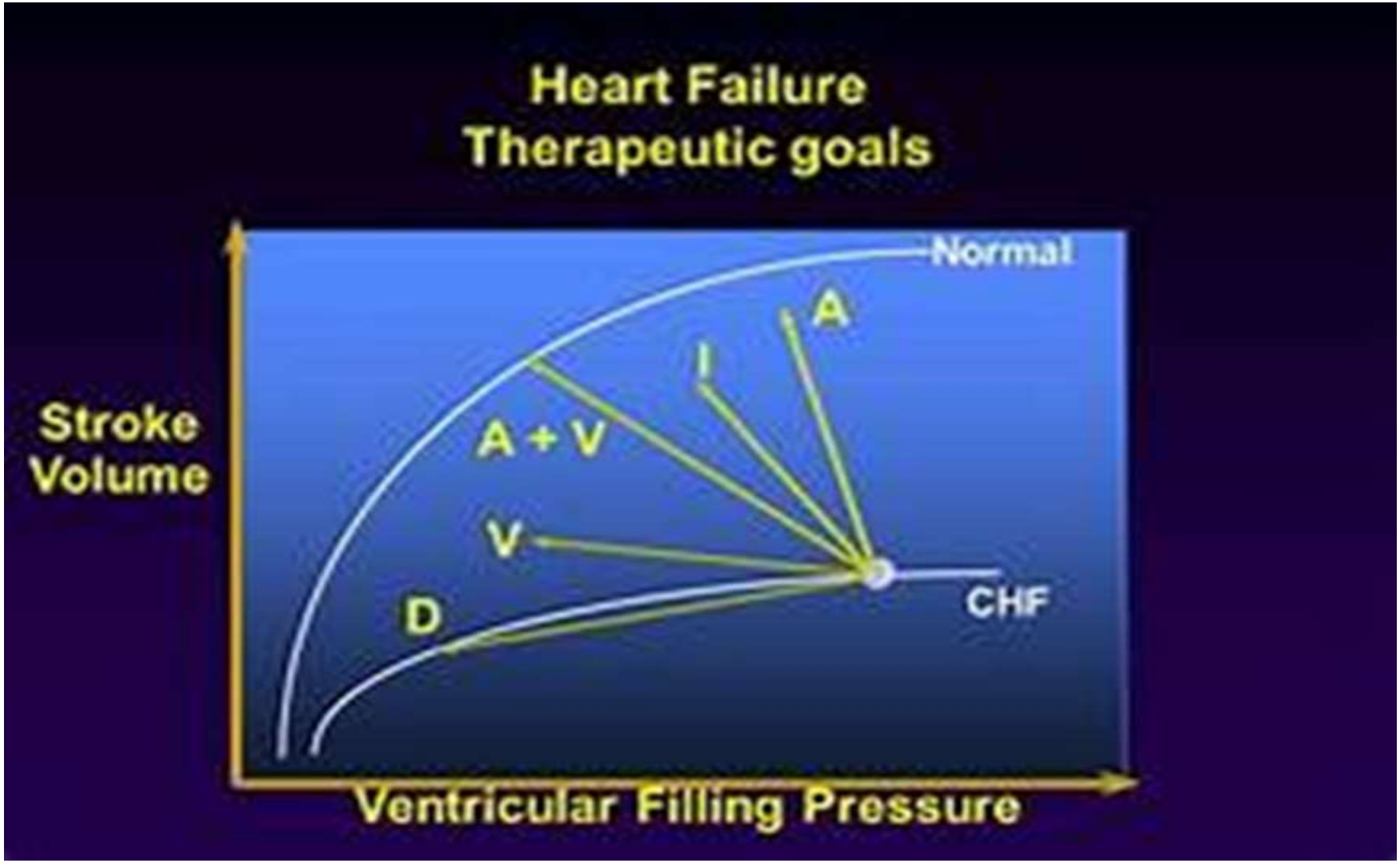
Device Therapy

- Cardiac Resynchronization (CRT)
  - Biventricular pacing
- Implantable Cardioverter Defibrillator (ICD)
  - To reduce incidence of cardiac death seen
- Ventricular Assisted Devices (VAD)
  - Often used as a bridge while waiting for definitive therapy

Define: Problem Statement



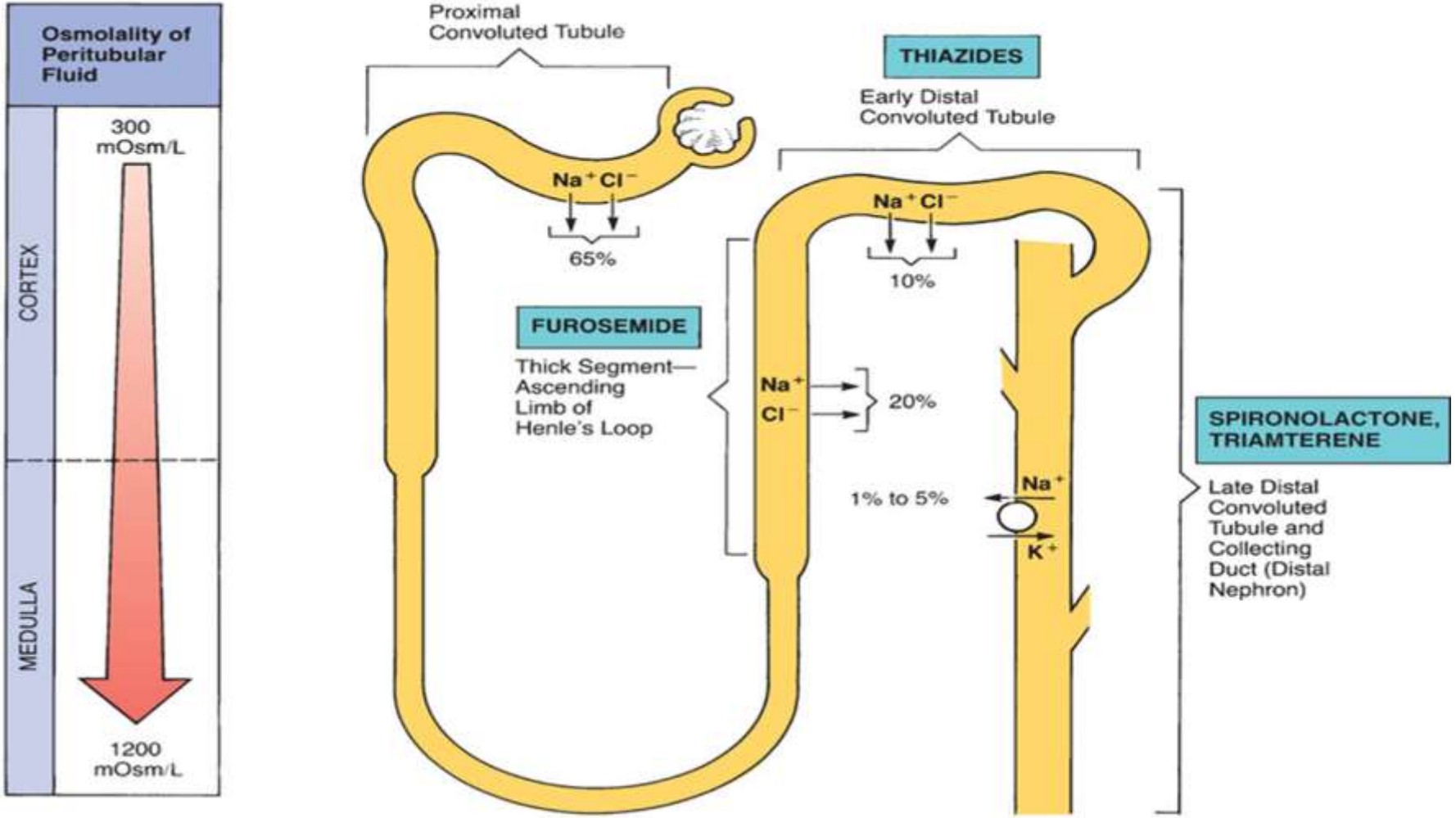
Therapeutic Goals



Classification of CHF

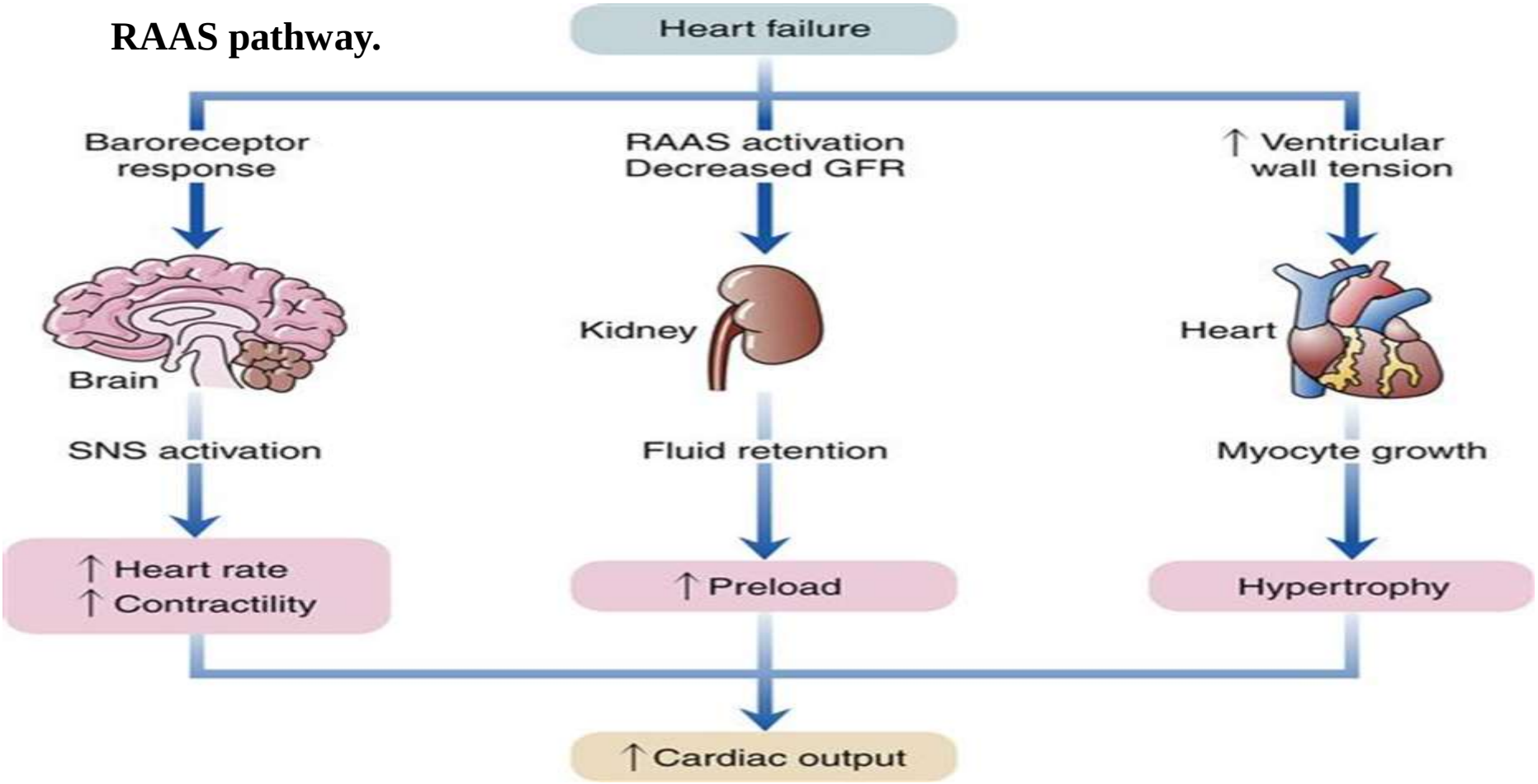
- **BY EJECTION FRACTION**
  - Reduced ejection fraction(<40-50%)- systolic heart failure
  - Preserved ejection fraction(>40-50%)- diastolic heart failure
- **BY TIME COURSE**
  - Chronic heart failure(CHF)
  - Acute heart failure (Cardiogenic Shock)
- **ANATOMICALLY**
  - Left sided- LHF
  - Right sided- RHF(CHF)
- **BY OUTPUT**
  - High output failure-Thyrotoxicosis, Paget's disease, Anemia, Pregnancy, A-V fistula
  - Low output failure

Ideate: Diuretics

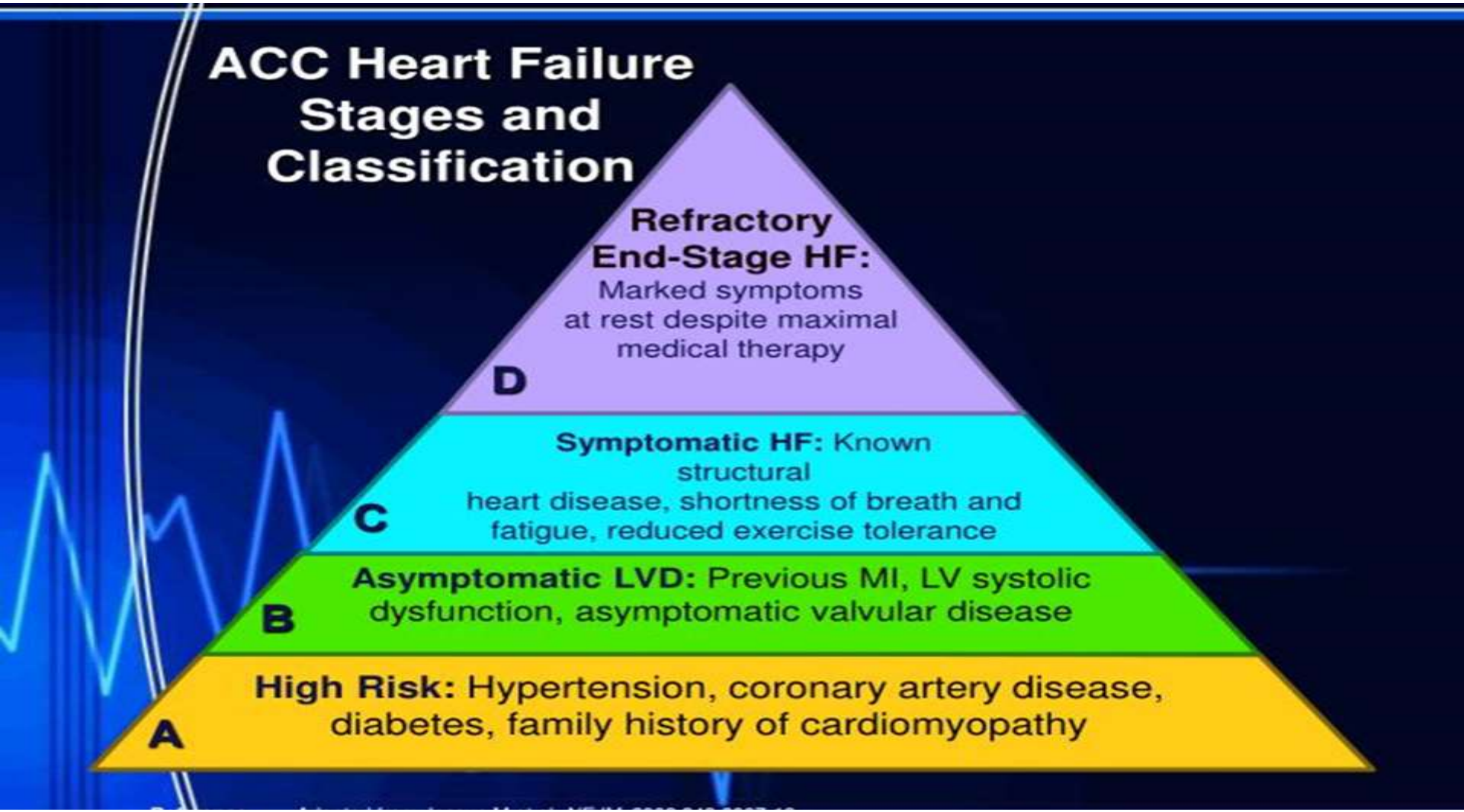


ACE Inhibitors & ARBs

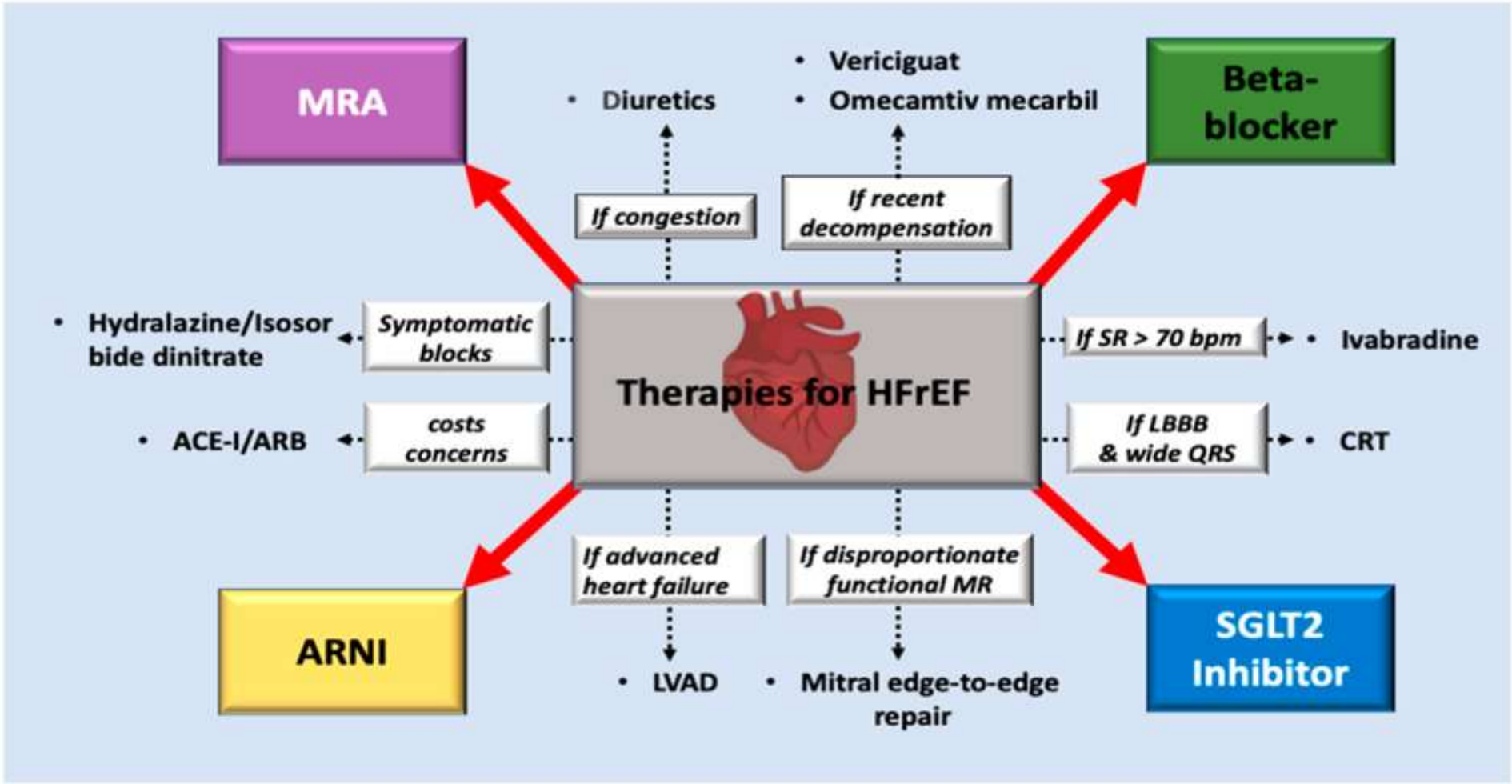
RAAS pathway.



Prototype: Drug Regimens

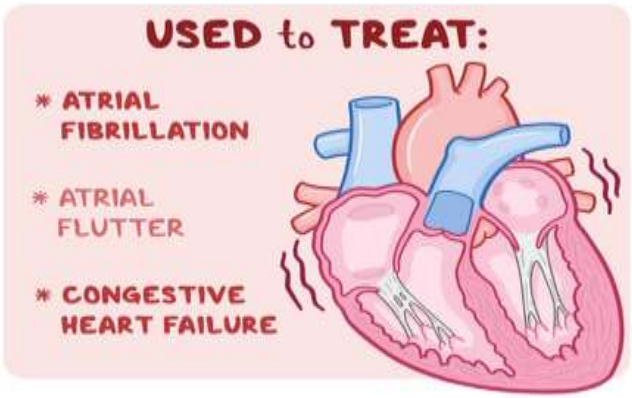


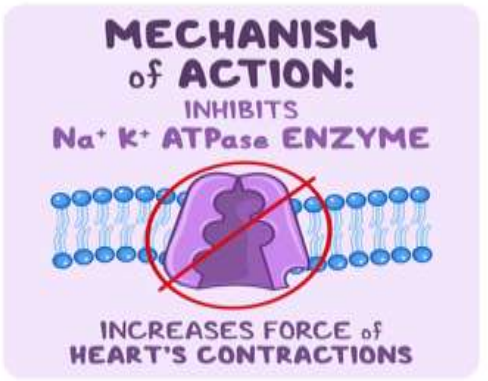
Combination Therapy



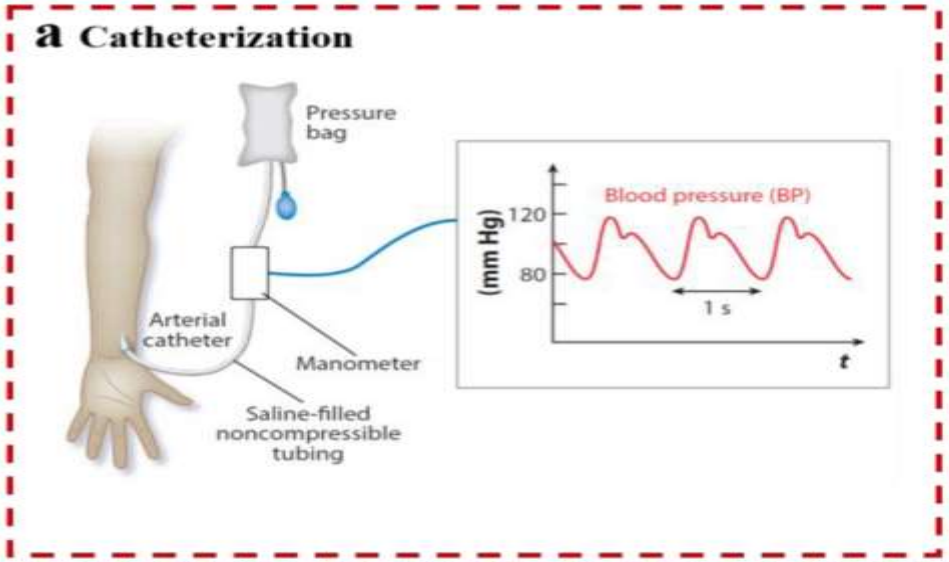
Adverse Drug Reactions

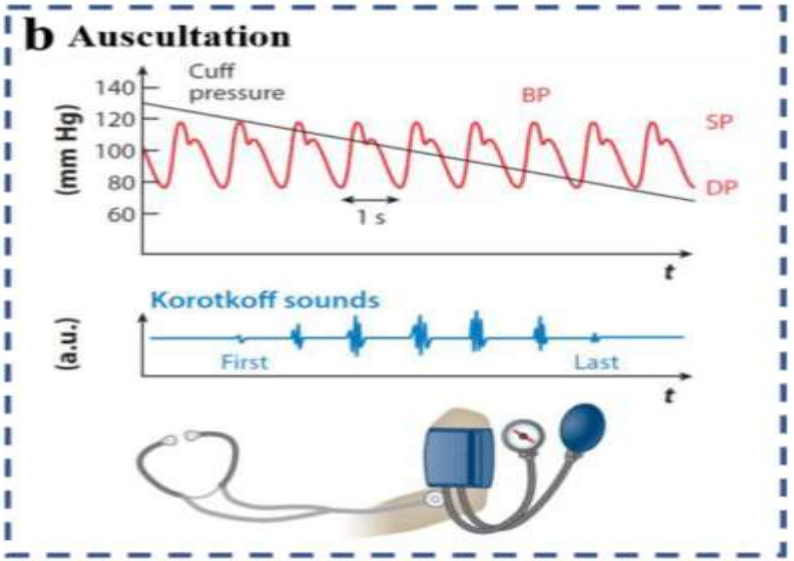
Common ADRs:

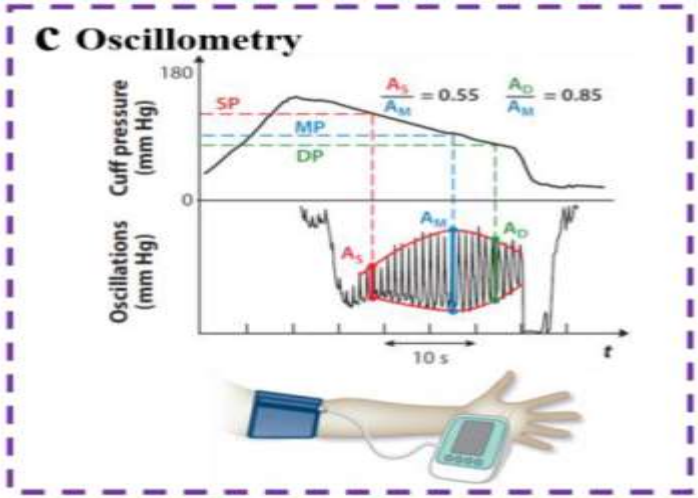


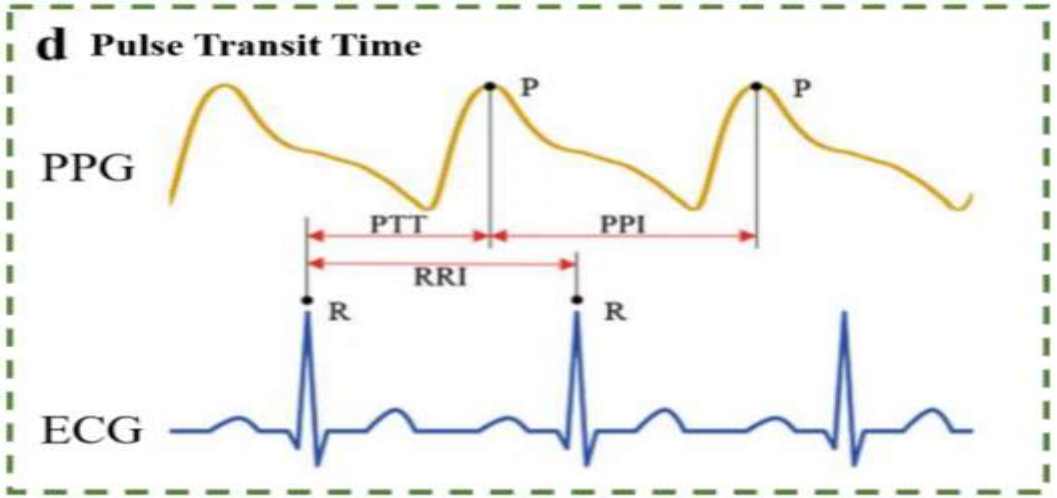


Monitoring Parameters

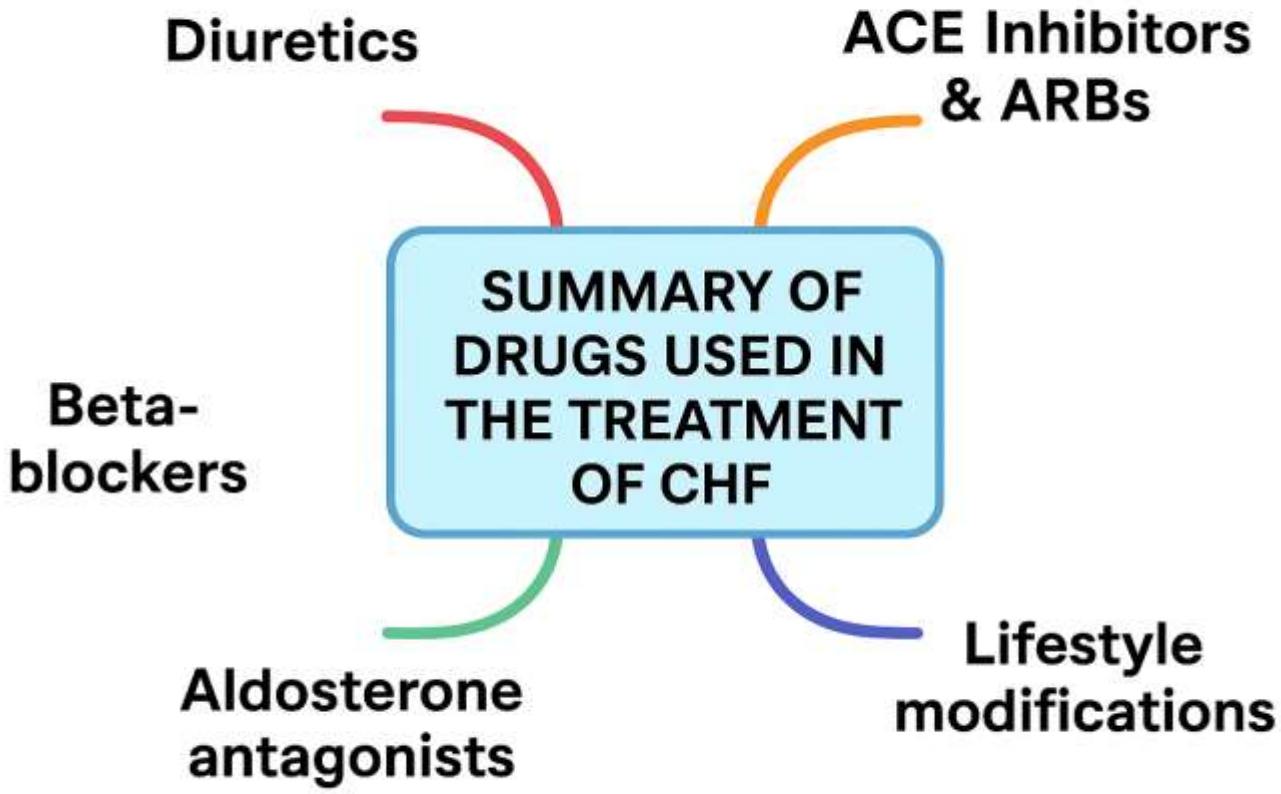








Patient Feedback & Quality of Life


Diuretics
ACE Inhibitors & ARBs
SUMMARY OF DRUGS USED IN THE TREATMENT OF CHF
Beta-blockers
Aldosterone antagonists
Lifestyle modifications

REFRANCE

- Rang H. P., Dale M. M.,Ritter J. M.,Flower R.J.,Rang and Dale‘s Pharmacology,.Churchil Livingstone Elsevier
- Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill
- Goodman and Gilman‘s, The Pharmacological Basis of Therapeutics
- Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K.,Bradley R.W., Applied Therapeutics, The Clinical use of Drugs, The Point Lippincott Williams & Wilkins
- Mycek M.J, Gelnet S.B and Perper M.M. Lippincott‘s Illustrated Reviews- Pharmacology
- K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical P ublishers (P) Ltd, New Delhi

ASSESSMENT

Q1: Which of the following is a primary drug used in the management of hypovolemic shock?
A. Dopamine
B. Epinephrine
C. Normal saline
D. Furosemide
Answer: C. Normal saline
Q2: Norepinephrine is primarily used in which type of shock?
A. Cardiogenic
B. Septic
C. Hypovolemic
D. Neurogenic
Answer: B. Septic

Q3: Which of the following is a hematinic used to treat iron deficiency anemia?
A. Warfarin
B. Ferrous sulfate
C. Heparin
D. Streptokinase

Answer: B. Ferrous sulfate

Q4: Which anticoagulant works by activating antithrombin III?
A. Aspirin
B. Heparin
C. Vitamin K
D. Clopidogrel

Answer: B. Heparin

Q5: Vitamin K is primarily used as:
A. An anticoagulant
B. A fibrinolytic
C. A coagulant
D. An anti-platelet agent

Answer: C. A coagulant


Thank
you

Pathways to Controlled Release