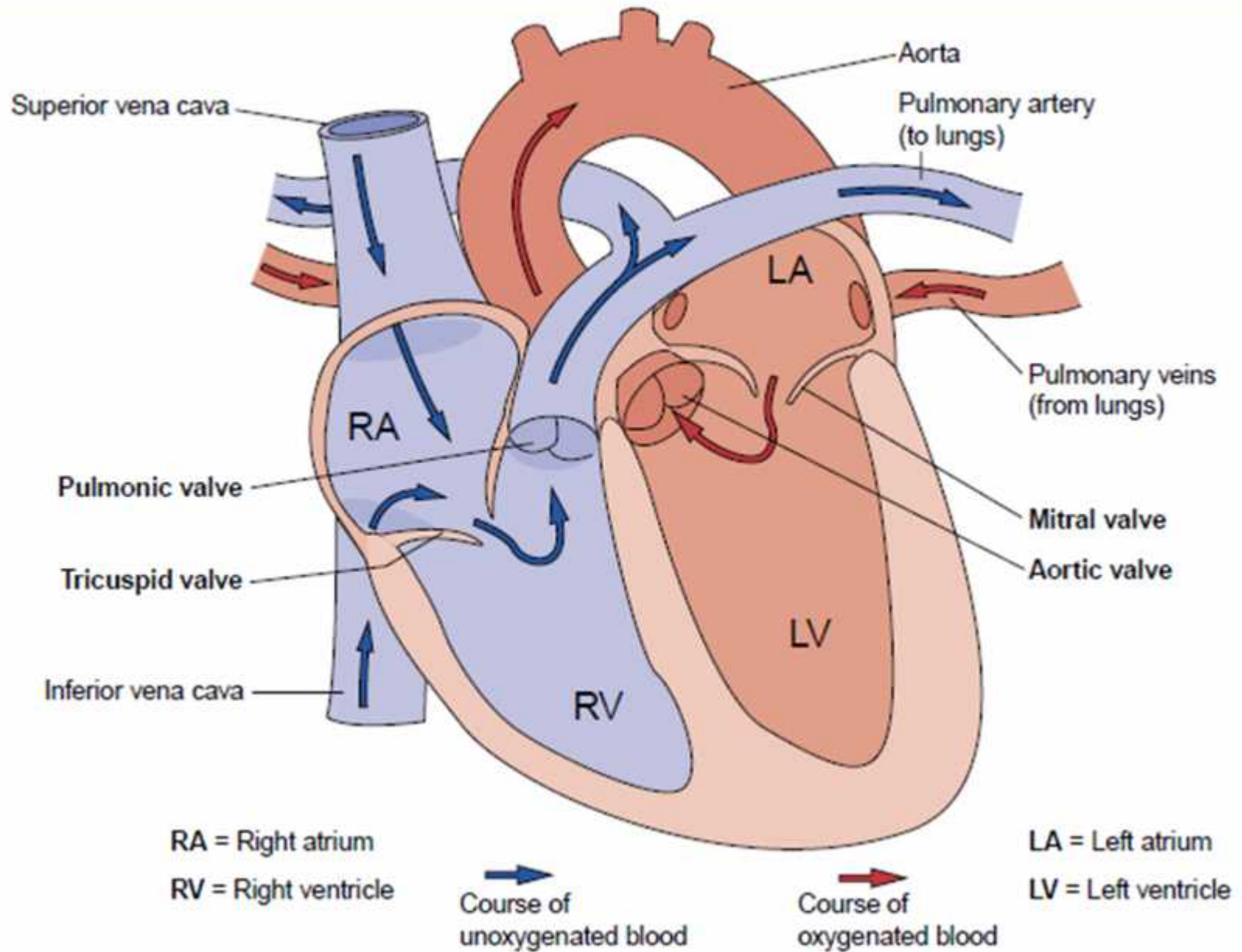
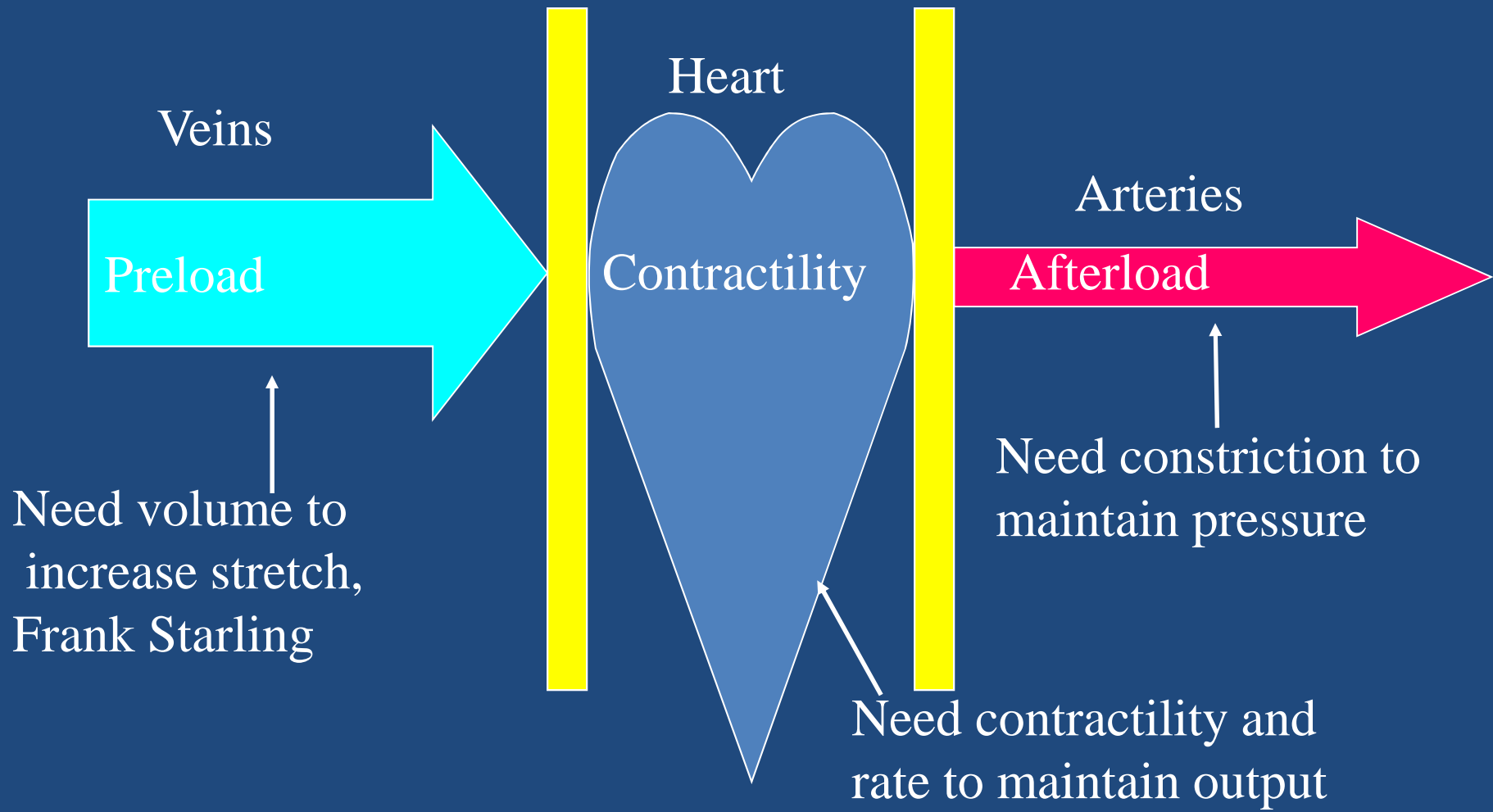


GAGAL JANTUNG [HEART FAILURE]



The Big Picture in Failure



DEFINISI GAGAL JANTUNG

- suatu keadaan patofisiologis di mana jantung tidak mampu memompa darah sesuai kebutuhan metabolisme jaringan, atau untuk memenuhi kebutuhan jaringan harus meningkatkan tekanan pengisian.
- gagal jantung adalah suatu sindroma klinik yang kompleks akibat gangguan fungsional/ struktural jantung yang mengganggu kemampuan pengisian/ memompa ventrikel.

Table 3 Definition of heart failure

Heart failure is a clinical syndrome in which patients have the following features:

- **Symptoms typical of heart failure**

(breathlessness at rest or on exercise, fatigue, tiredness, ankle swelling)

and

- **Signs typical of heart failure**

(tachycardia, tachypnoea, pulmonary rales, pleural effusion, raised jugular venous pressure, peripheral oedema, hepatomegaly)

and

- **Objective evidence of a structural or functional abnormality of the heart at rest**

(cardiomegaly, third heart sound, cardiac murmurs, abnormality on the echocardiogram, raised natriuretic peptide concentration)

DEFINISI GAGAL JANTUNG

Gagal Jantung merupakan akhir dari beberapa penyakit jantung :

PENYAKIT JANTUNG BAWAAN

PENYAKIT JANTUNG KATUP

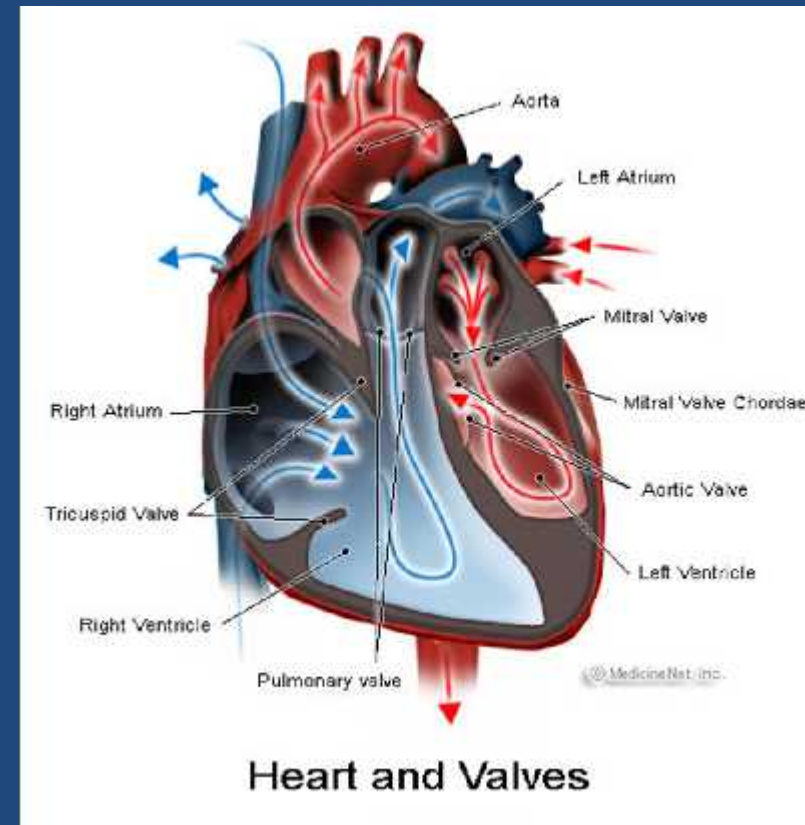
PENYAKIT JANTUNG KARDIOMIOPATI

PENYAKIT JANTUNG KORONER

PENYAKIT JANTUNG HIPERTENSI

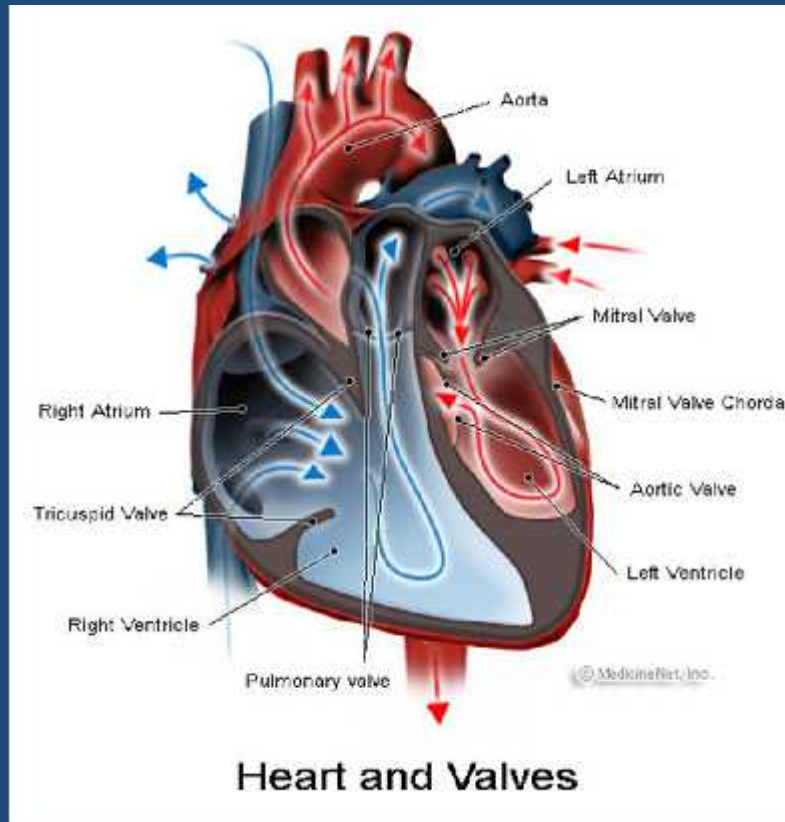
ETIOLOGI GAGAL JANTUNG

1. Peningkatan beban awal (preload) : MR,AR,TR
2. Penurunan beban awal : MS,Tamponade,
3. Kelemahan otot jantung : IMA
4. Penurunan kemampuan mengembang ventrikel: LVH
5. Peningkatan beban akhir (afterload) : Hipertensi,AS,PS
6. Hilangnya peran sistolik atrium : Atrial fibrilasi



Paradigma lama : Gagal jantung disebabkan karena berkurangnya kontraktilitas dan daya pompa

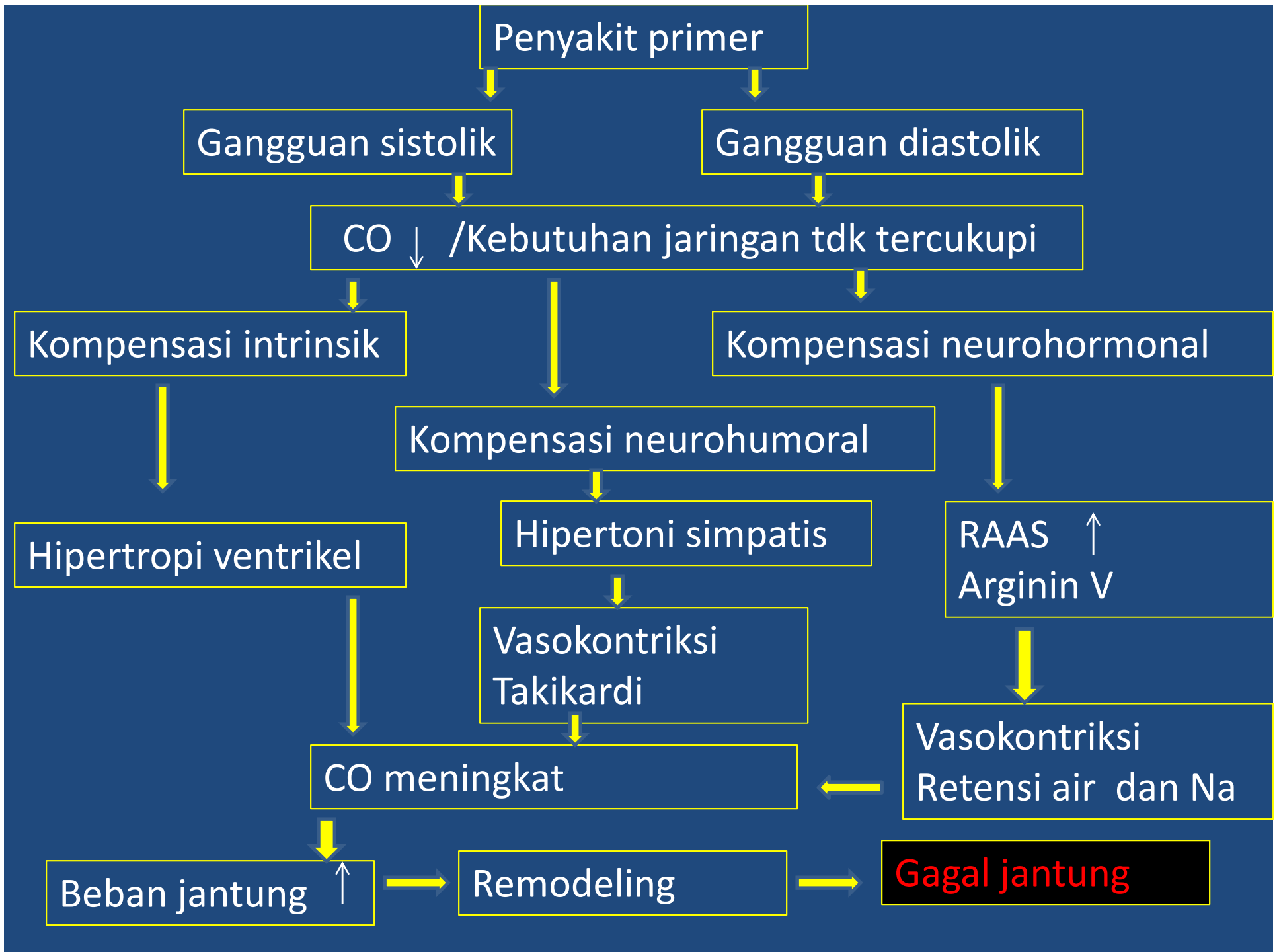
Paradigma baru : Gagal jantung merupakan remodeling progresif akibat beban /penyakit pada miokardium



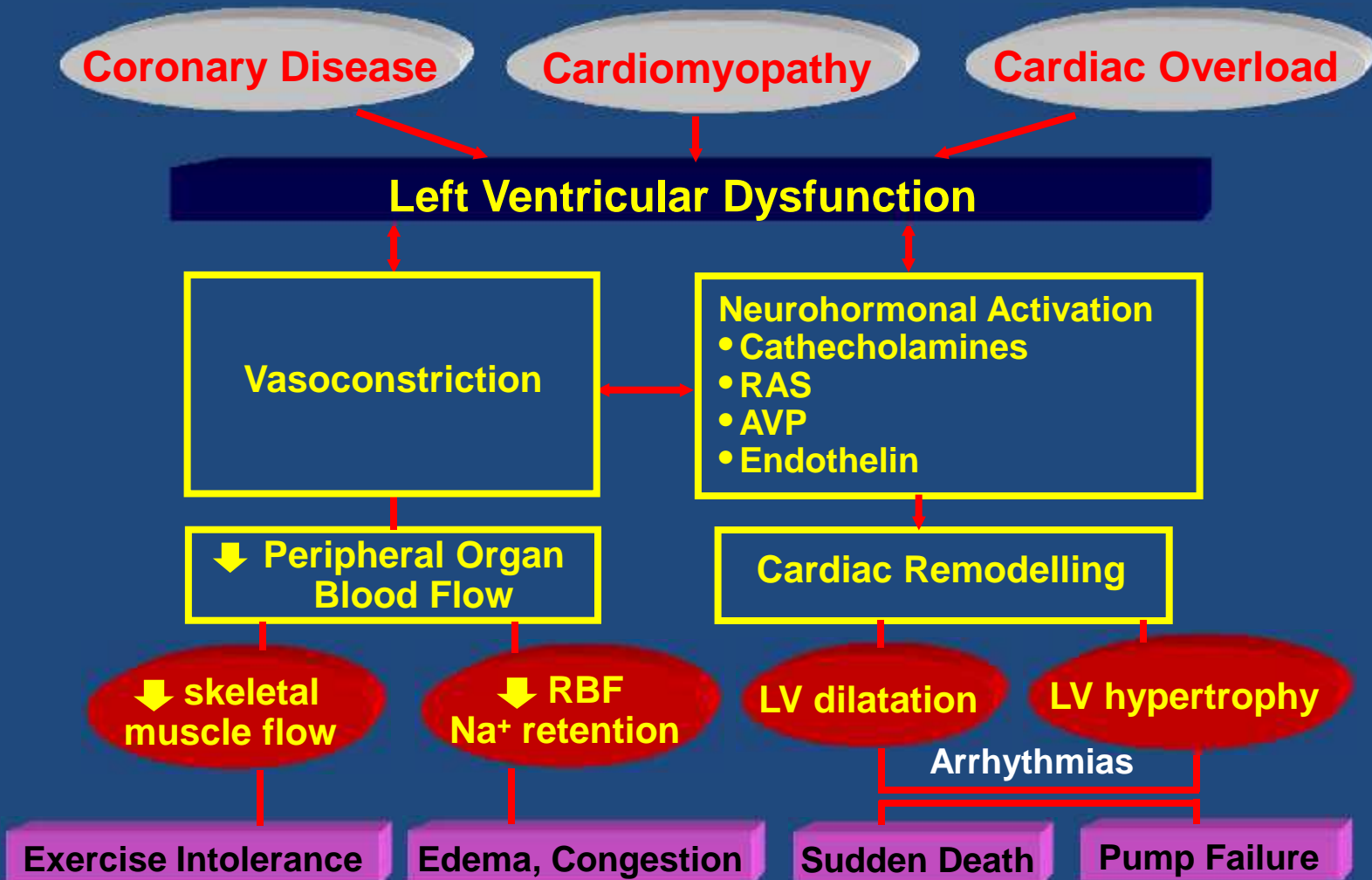
Kompensasi intrinsik

Kompensasi neurohumoral

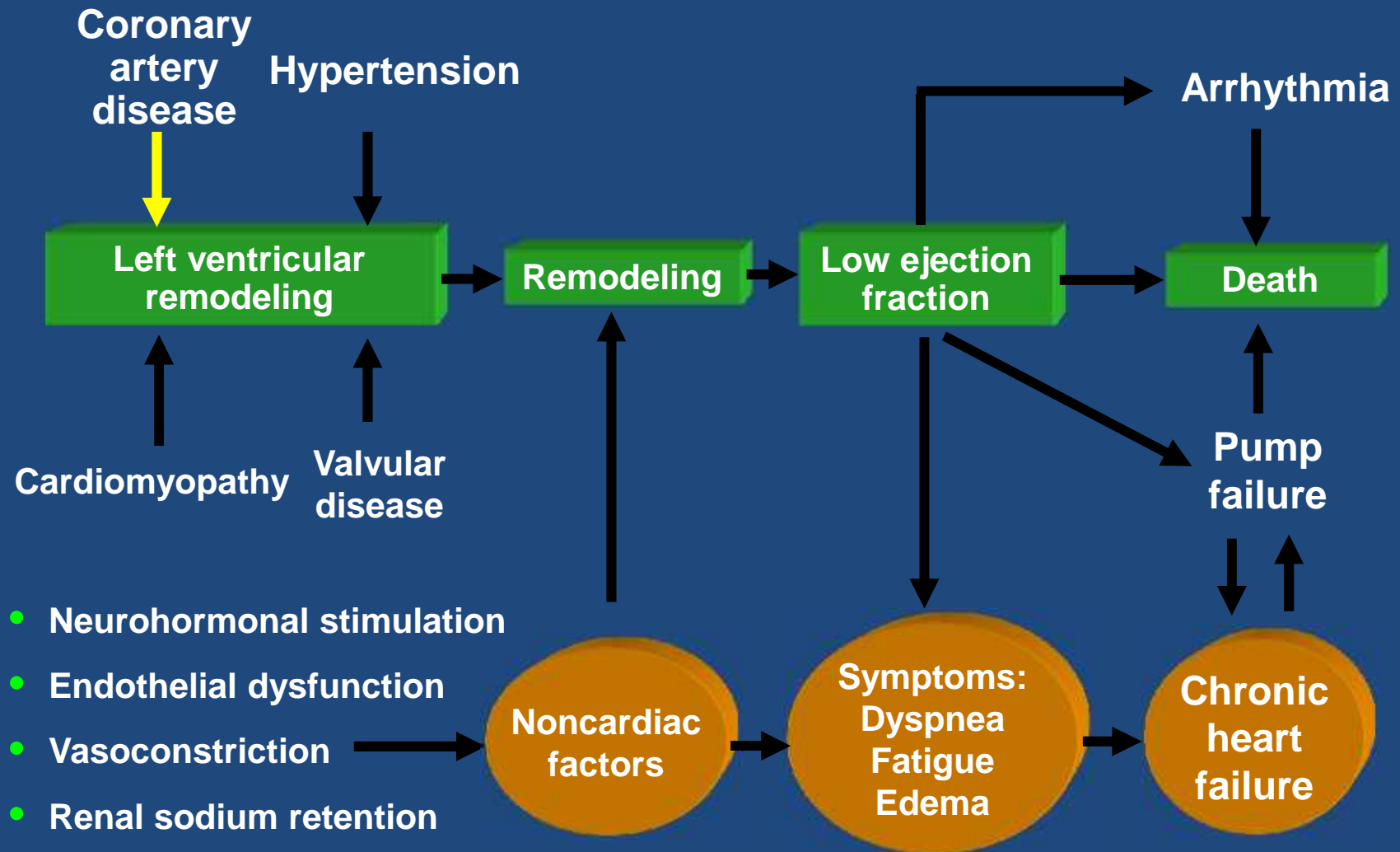
Kompensasi neurohormonal



Activation of Neurohormonal Pathways in HF

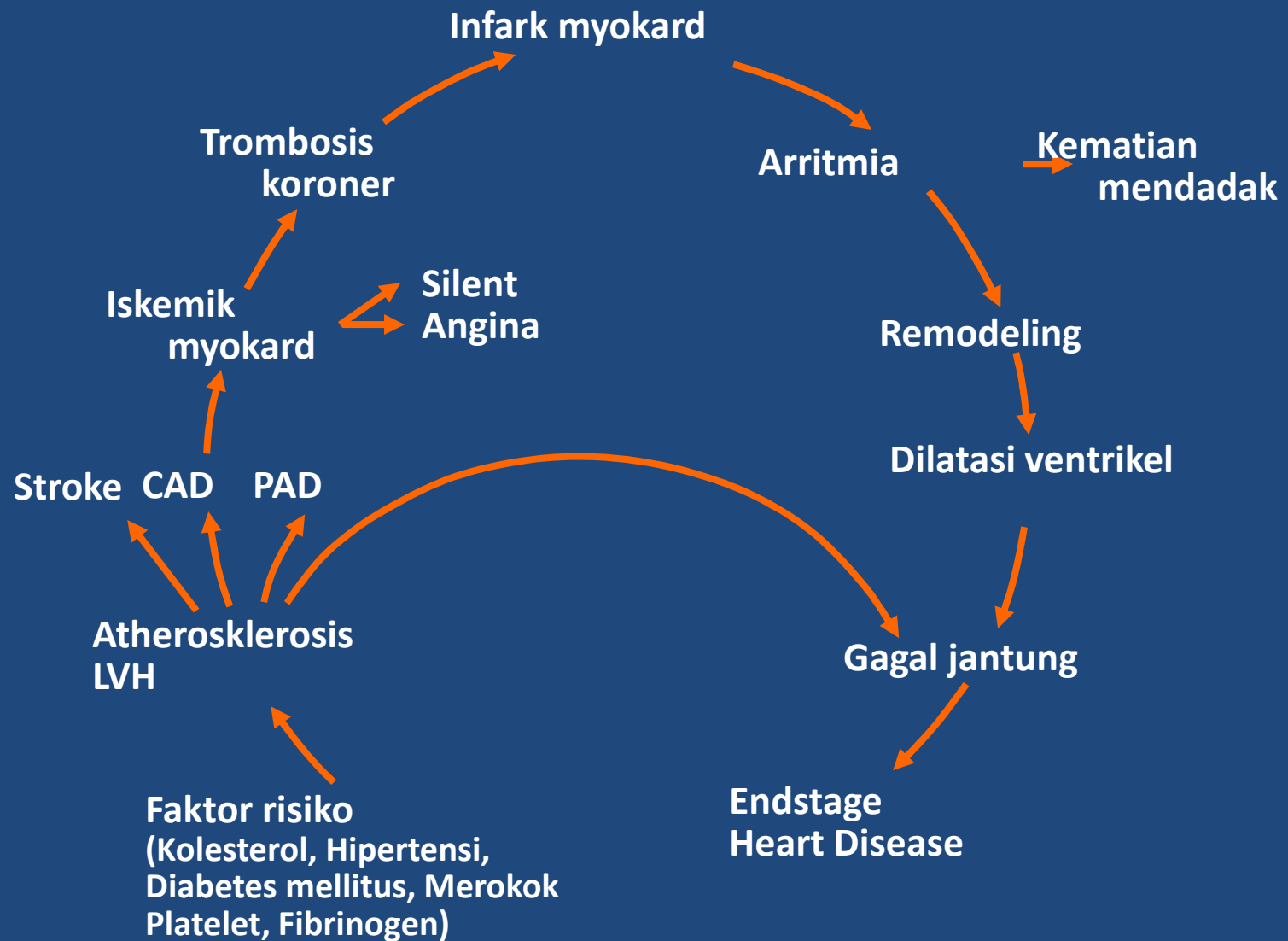


Progression of Cardiovascular Disease

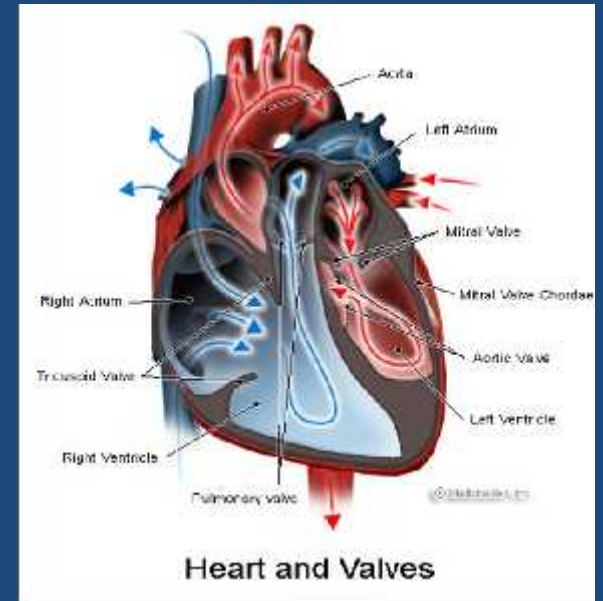


(Abraham, 2000)

Rantai Kejadian Menuju Endstage Heart Disease



EVOLVING MODELS OF HEART FAILURE



Cardiorenal

Hemodynamic

Neurohormonal

Digitalis and Diuretic
to Perfuse kidneys

Vasodilators or positive
inotropes to relieve
ventricular wall stress

ACE-I, β -blockers and
other agents to block
neurohormonal
activation

1940s

1960s

1970s

1990s - 2000

Gambaran klinik

1. **Mekanisme kompensasi** : Berdebar, keringat dingin, takikardi
2. **Sindrom low output** : Lesu, lelah, lemah, tak bergairah, bingung, konsentrasi menurun, gelisah
3. **Sindrom kongesti** : Sesak nafas, edema paru, JVP meninggi, Asites, Hepatomegali, Edema tungkai, Edema tungkai, batuk darah
4. **Sindrom remodeling** : Hipertrofi dan dilatasi ventrikel, bising jantung, irama gallop S3

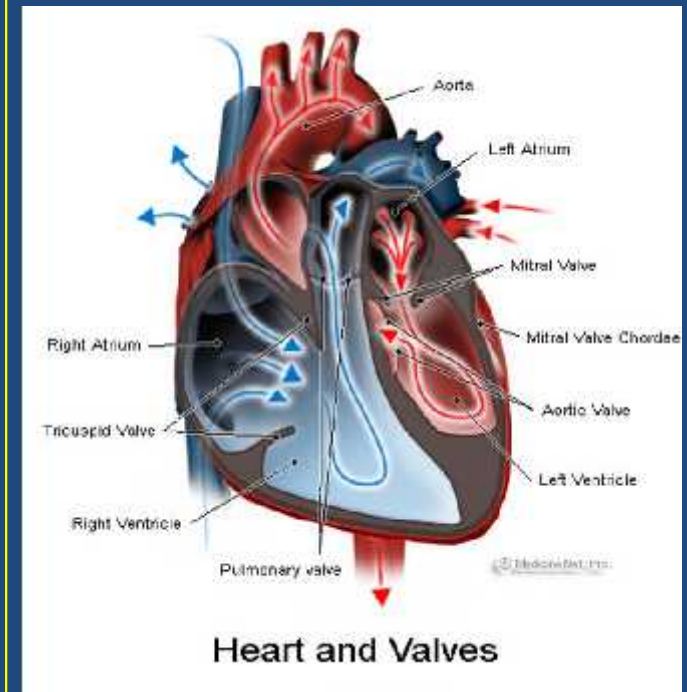


Table 6 Classification of heart failure by structural abnormality (ACC/AHA), or by symptoms relating to functional capacity (NYHA)

ACC/AHA stages of heart failure		NYHA functional classification	
Stage of heart failure based on structure and damage to heart muscle		Severity based on symptoms and physical activity	
Stage A	At high risk for developing heart failure. No identified structural or functional abnormality; no signs or symptoms.	Class I	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnoea.
Stage B	Developed structural heart disease that is strongly associated with the development of heart failure, but without signs or symptoms.	Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnoea.
Stage C	Symptomatic heart failure associated with underlying structural heart disease.	Class III	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity results in fatigue, palpitation, or dyspnoea.
Stage D	Advanced structural heart disease and marked symptoms of heart failure at rest despite maximal medical therapy.	Class IV	Unable to carry on any physical activity without discomfort. Symptoms at rest. If any physical activity is undertaken, discomfort is increased.

DIAGNOSIS

1. Anamnesis
2. Pemeriksaan fisik
3. Pemeriksaan tambahan : laboratorium, X foto thorax, EKG, Echokardiografi, Kateterisasi jantung

1. Darah tepi : leukositosis
2. Urinalisis : jumlah urin berkurang
3. Foto dada : Kardiomegali, tanda kongesti paru
4. EKG : Kardiomegali, ggn irama, iskemia
5. Echokardiografi : Kardiomegali, penurunan kontraktilitas, kelainan katup, penurunan fraksi terpompa
6. Kateterisasi : tanda kongesti paru (peningkatan LVEDP,atrium kiri,a. pulmonalis)

MANAGEMENT

Change in Activity & Diet :

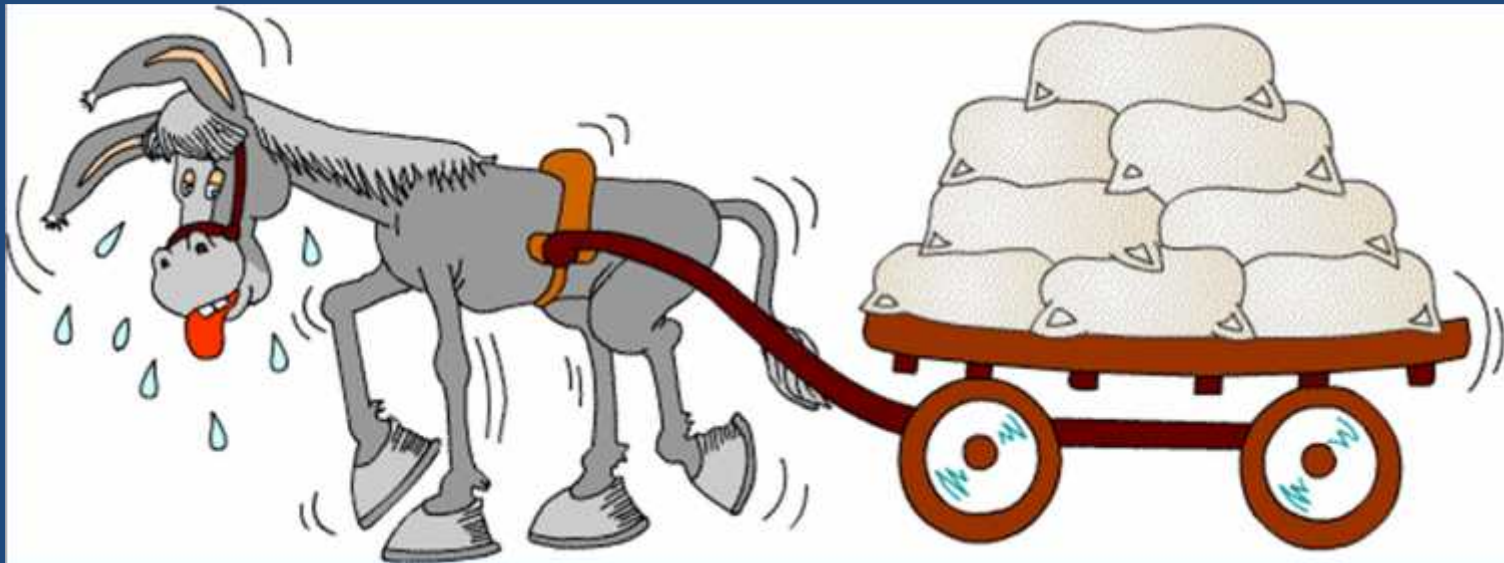
- Bed Rest/Restriction of physical activity
- Sodium & Fluid `restriction
- Reducing Emotional stress
- Calory restriction in overweight patient

Treatment Options in Heart Failure

- Digoxin
- Diuretics
- Afterload reduction
 - ACE inhibitors: ACEI
 - Angiotensin II receptor blockers: ARBs
 - Nonspecific vasodilators
- Beta blockers
- Aldosterone antagonists

The Donkey Analogy

Ventricular dysfunction limits a patient's ability to perform the routine activities of daily living...



Digitalis Compounds

Like the carrot placed in front of the donkey



Diuretics, ACE Inhibitors

Reduce the number of sacks on the wagon



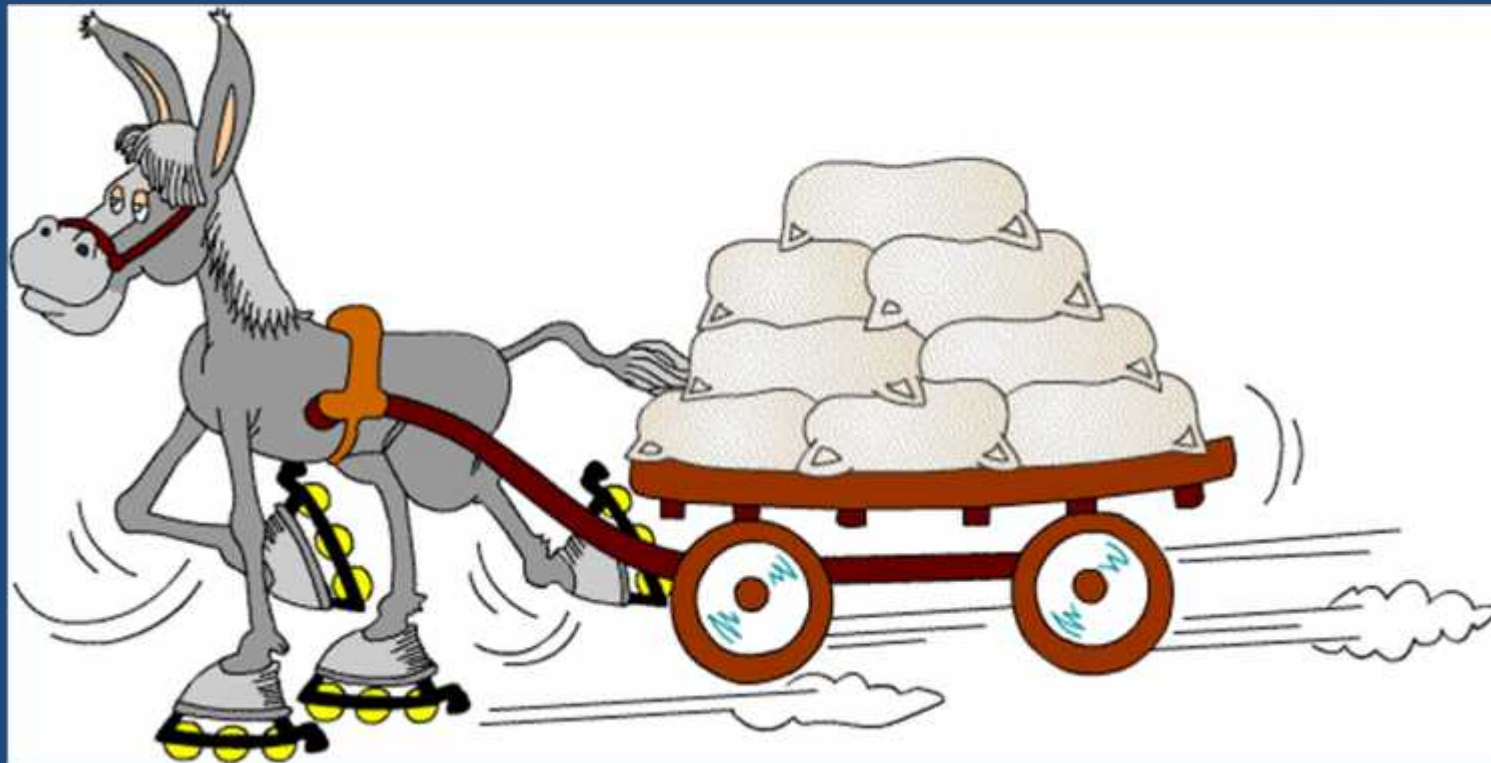
β -Blockers

Limit the donkey's speed, thus saving energy

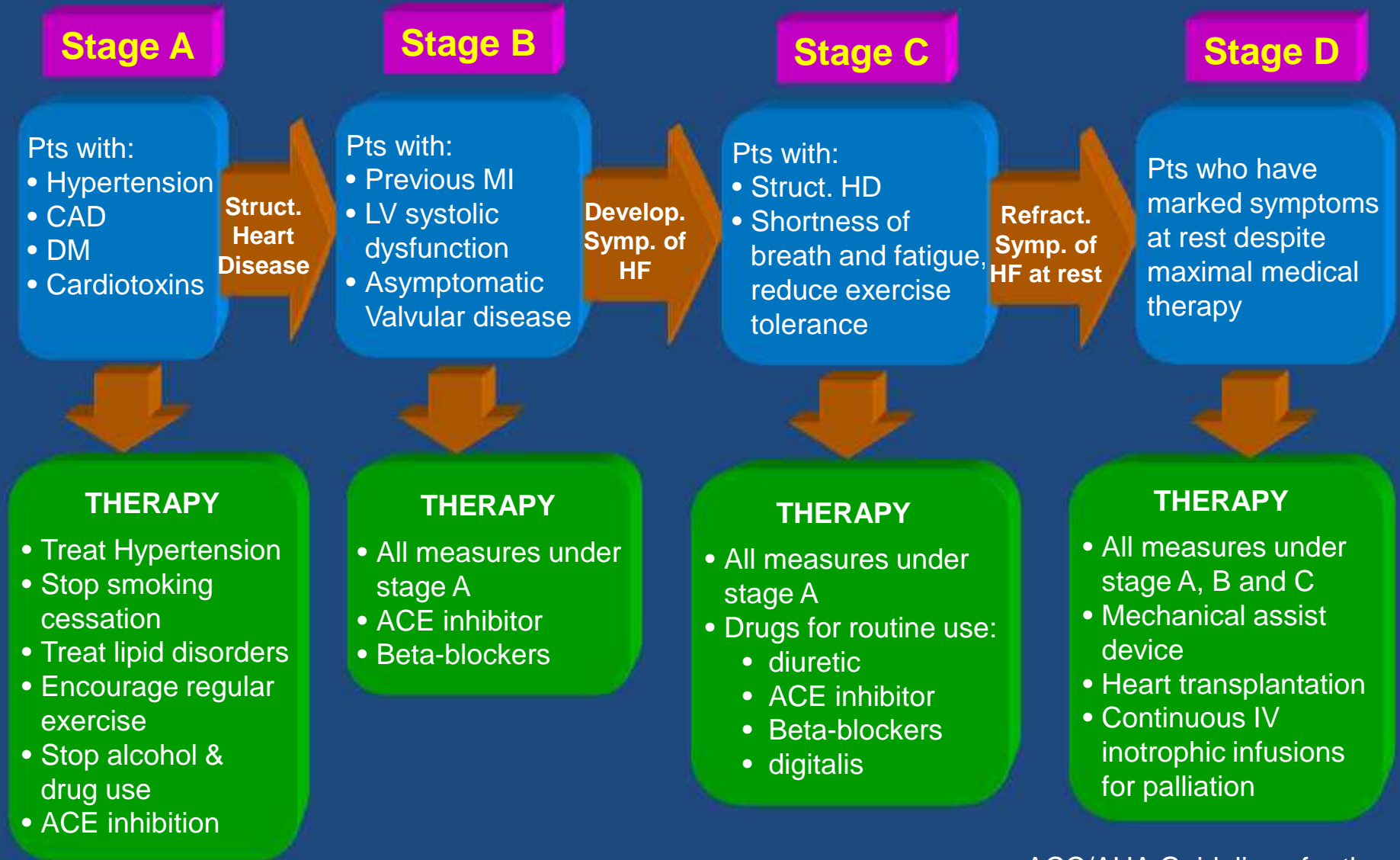


Cardiac Resynchronization Therapy

Increase the donkey's (heart) efficiency



Stages in the evolution of HF and recommended therapy by stage



Terapi ADHF

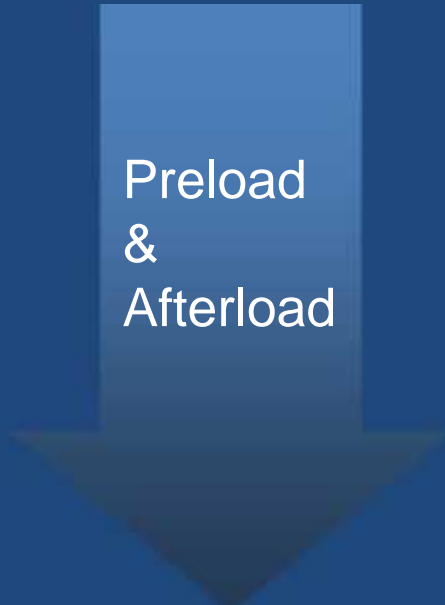
Diuretik

Volume
cairan



Vasodilator

Preload
&
Afterload



Inotropik

Kontraktilitas

