

OBAT GAGAL JANTUNG

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Gagal Jantung

- ❖ Sindrom klinis dimana gangguan struktur atau fungsi jantung mengakibatkan ketidakmampuan jantung memompa darah yang mencukupi bagi jaringan
- ❖ Penyebab:
 - Penyakit jantung iskemik, kardiomiopati, penyakit jantung kongenital, penyakit katup jantung, hipertensi
 - Infeksi, aritmia, aktivitas fisik >>>, makan >>>, cairan >>>, emosi, anemia, tirotoksikosis

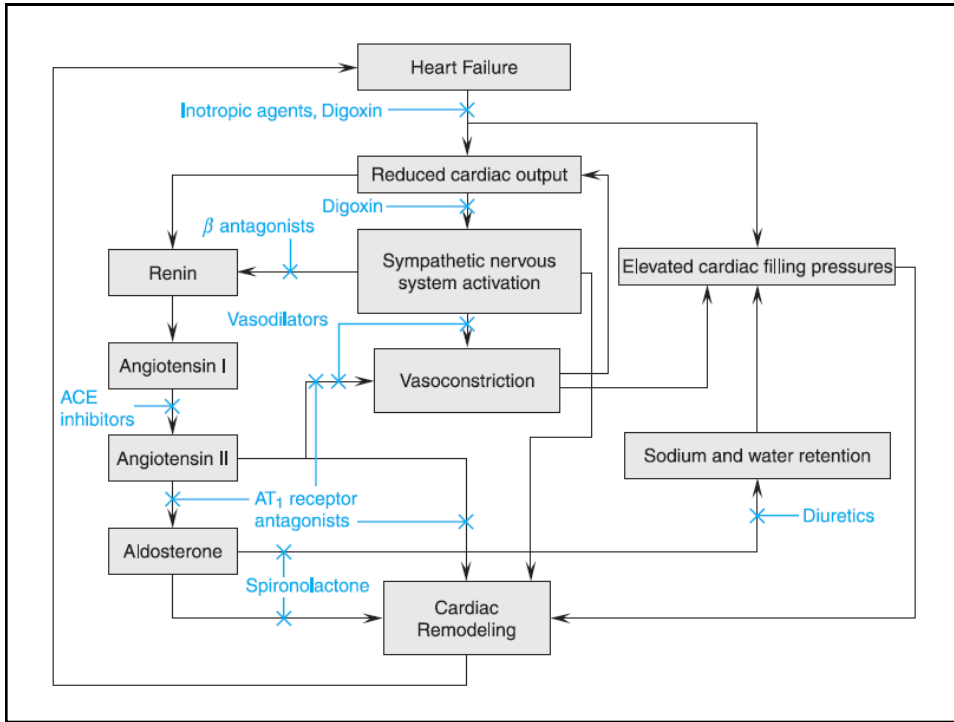


Table 2 – AHA/ACC heart failure staging⁴ compared with NYHA classification scheme

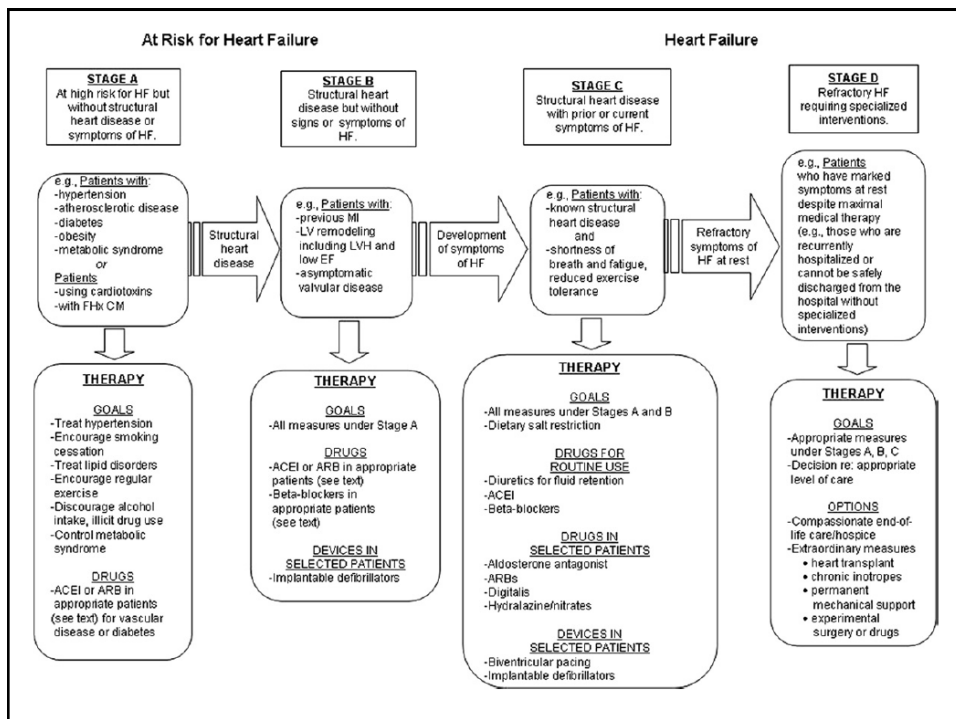
AHA/ACC Stage	Examples	NYHA Class
Stage A Patients at high risk for heart failure but without structural heart disease or symptoms of heart failure	Hypertension, diabetes mellitus, obesity, CAD (post-MI or revascularization), peripheral vascular disease, CVA, family history, exposure to cardiac toxins	—
Stage B Patients with structural heart disease but without signs and symptoms of heart failure	Prior MI, left ventricular hypertrophy or reduced LVEF, asymptomatic valvular disease	—
Stage C Patients with structural heart disease with prior or current symptoms of heart failure	Known structural heart disease and dyspnea, fatigue, reduced exercise tolerance	I - IV
Stage D Patients with refractory heart failure requiring specialized interventions	Marked symptoms at rest despite maximal medical therapy, with recurrent hospitalizations	III - IV

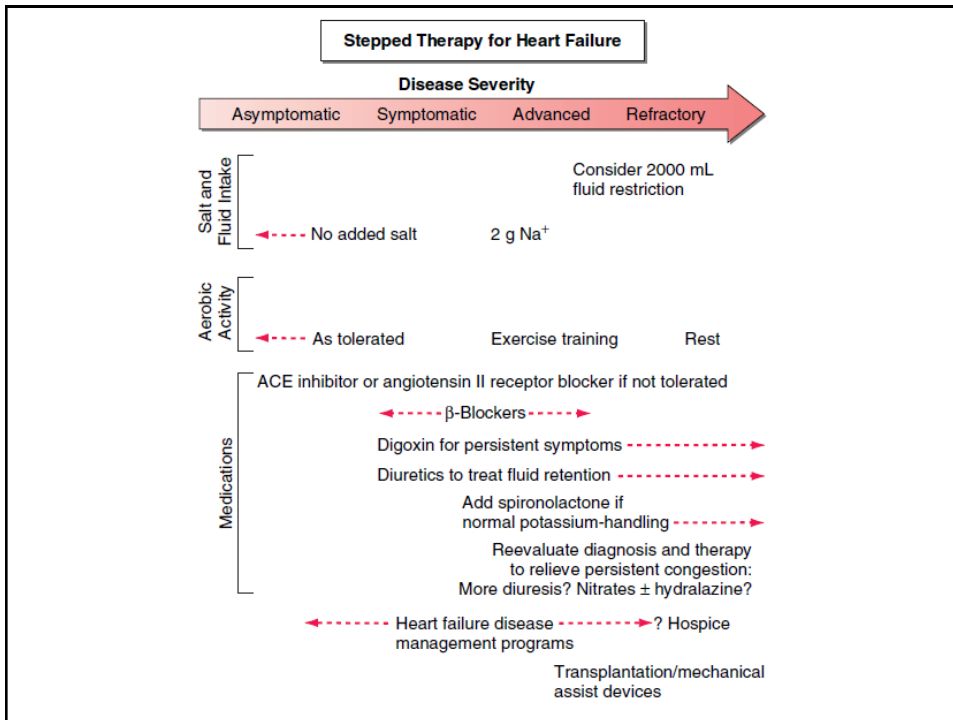
AHA, American Heart Association; ACC, American College of Cardiology; NYHA, New York Heart Association; CAD, coronary artery disease; CVA, cerebrovascular accident; MI, myocardial infarction; LVEF, left ventricular ejection fraction.

TABLE I. The stages of heart failure

Class	Patient symptoms
I (mild)	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnea.
II (mild)	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea.
III (moderate)	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, or dyspnea.
IV (severe)	Unable to carry out any physical activity without discomfort; symptoms of cardiac insufficiency at rest; if any physical activity is undertaken, discomfort is increased

Adapted from The Criteria Committee of the New York Heart Association. *Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Great Vessels*. 9th ed. Boston, Mass: Little, Brown & Co; 1994:253-256.





Stage C

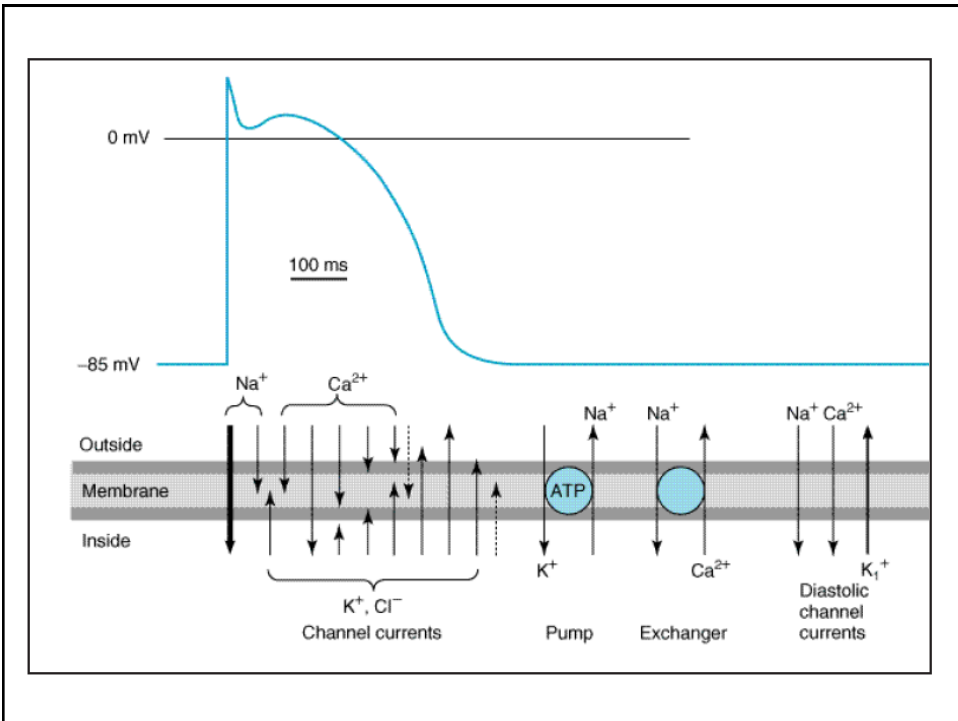
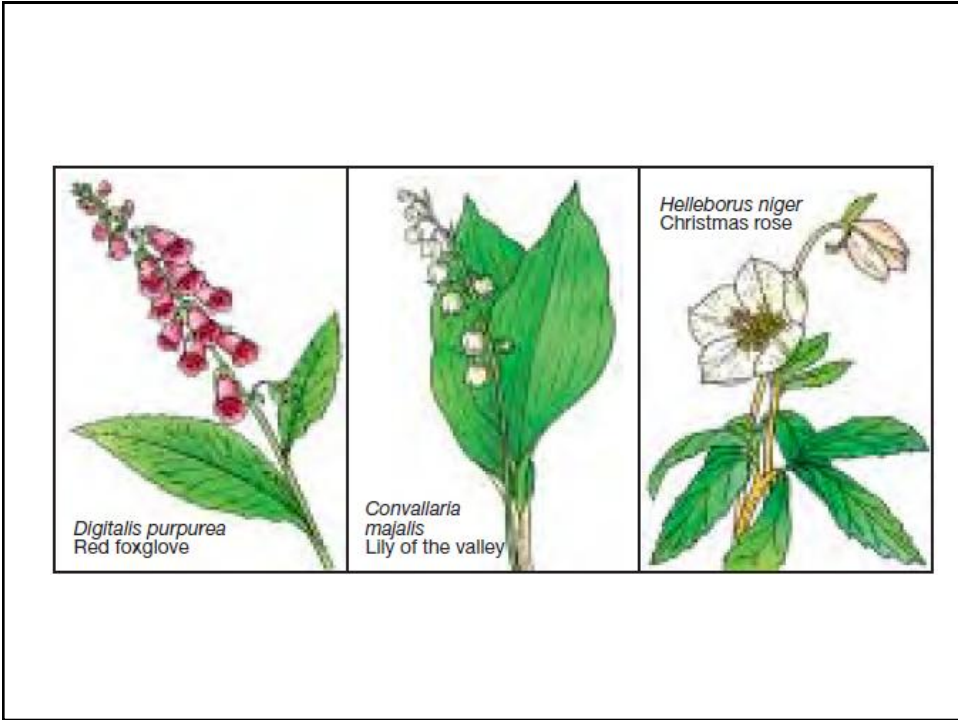
- ❖ Diuretik & restriksi garam
- ❖ ACEI
- ❖ Beta bloker (bisoprolol, karvedilol, metoprolol)
- ❖ ARB
- ❖ Antagonis aldosteron
- ❖ Digitalis
- ❖ Hidralazin + nitrat

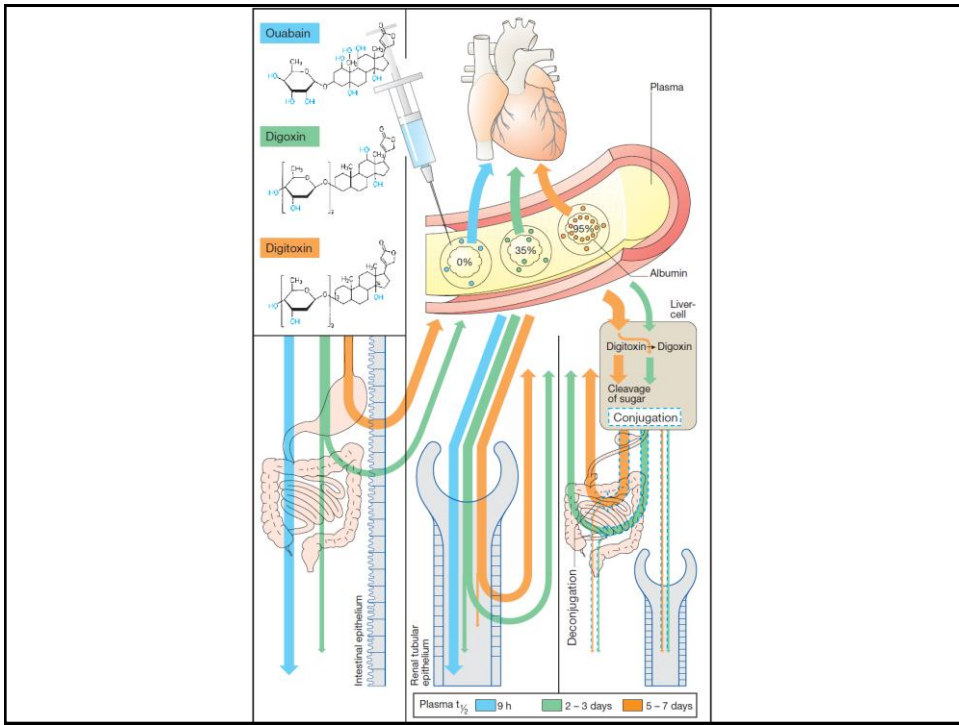
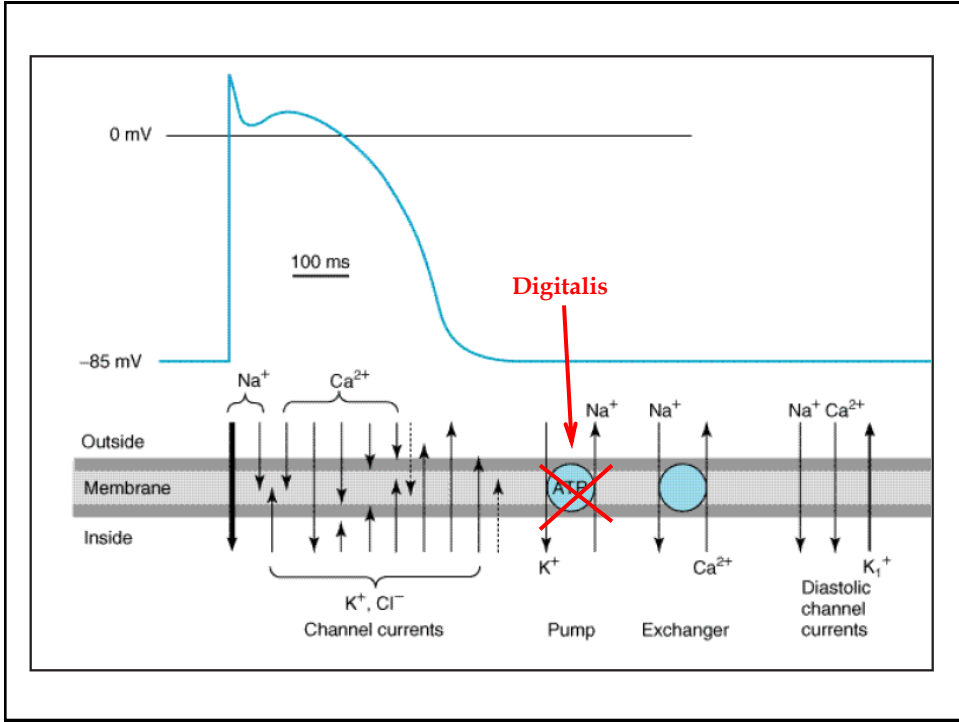
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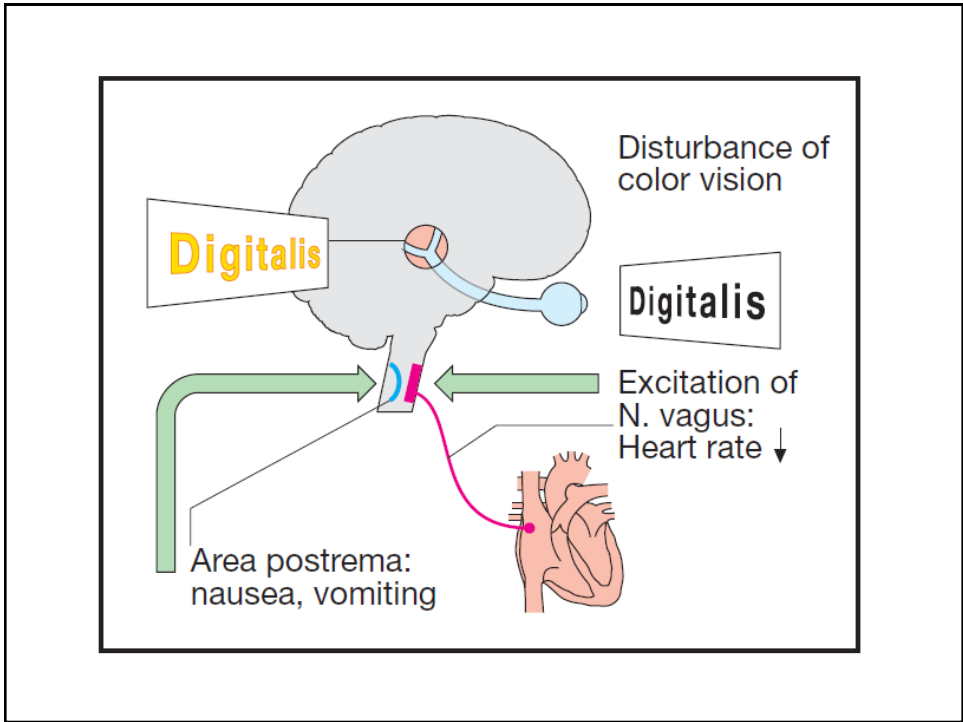
- ❖ Kombinasi ACEI, ARB & Antagonis aldosteron
- ❖ Infus inotropik positif jangka panjang
- ❖ Suplemen
- ❖ NSAID
- ❖ Antiaritmia
- ❖ Antagonis kalsium

Terapi Gagal Jantung

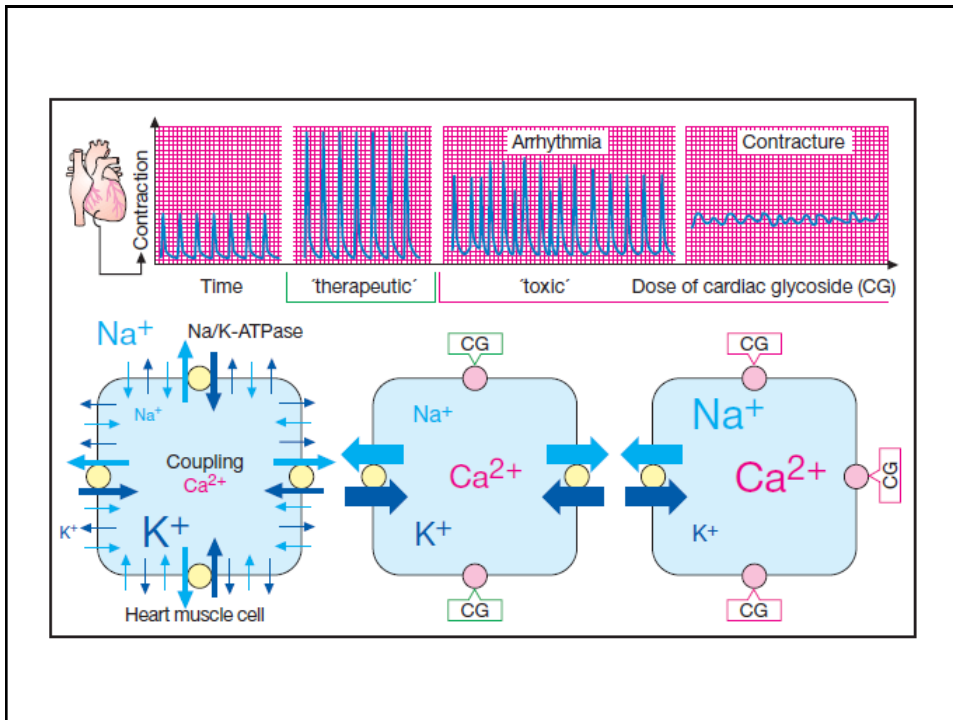
- ❖ Inotropik positif
 - Glikosida jantung: digitalis, digitoksin
 - Simpatomimetik: dopamin, dobutamin
 - Inhibitor fosfodiesterase: amrinon, milrinon
- ❖ Vasodilator
 - Vasodilator langsung: nitroprussid, hidralazin, ISDN
 - ACEI, ARB
- ❖ Diuretika: tiazid, *loop diuretics*, diuretik hemat kalium
- ❖ Beta-bloker: metoprolol, bisoprolol, karvedilol







Condition	Glycoside Binding to the Na ⁺ Pump	Reserve Capacity of the Na ⁺ Pump	Glycoside Sensitivity of the Heart	Margin of Safety for the Glycoside
Na ⁺ influx ↑ or Na ⁺ efflux ↓	↑	↓	↑	↓
Tachycardia				
Electrical cardioconversion				
Ischemic border zone				
Hypoxemia				
Low plasma K ⁺	↑	↓	↑	↓
Hypokalemia				
Na ⁺ pump units ↓		↓	No change	↓
Hypothyroidism				
Old Age				
Myocardial Ca ²⁺ loading ↑	No change	No change	↑	↓
Hypercalcemia				
Magnesium depletion				
Altered digitalis sensitivity of the Na ⁺ ,K ⁺ -ATPase				
Young children	↓	No change	↓	No change

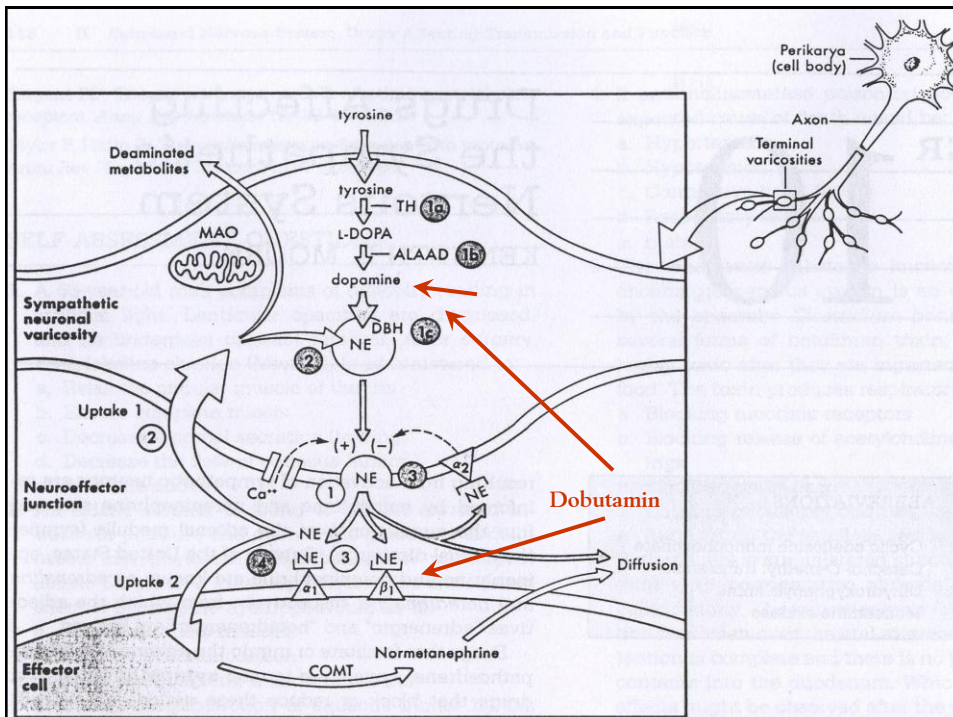


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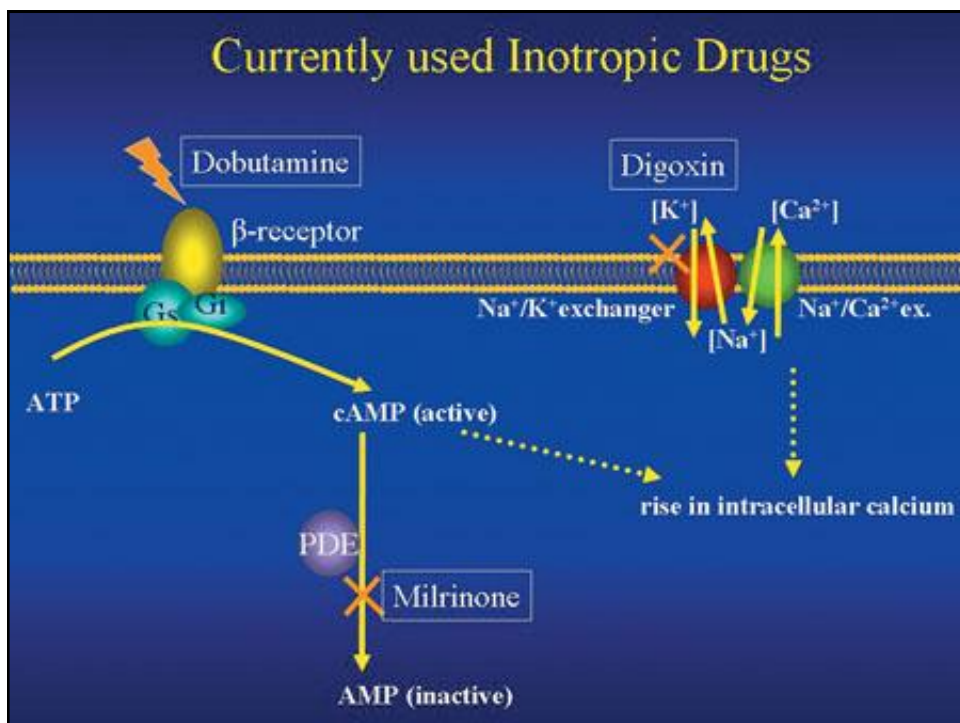
Dopamin, Dobutamin

- ❖ Simpatomimetik
- ❖ Dopamin: ↑ pelepasan NE
- ❖ Dobutamin: analog dopamin, agonis β_1
- ❖ Waktu paruh pendek → infus kontinu
- ❖ Downregulasi reseptor



Amrinon, Milrinon

- ❖ Menghambat fosfodiesterase III
- ❖ Inotropik lemah
- ❖ Milrinon 20x lebih poten daripada amrinon
- ❖ ES: aritmia



Stage D

- ❖ Rujuk ke unit spesialistik/UGD
- ❖ HF + overload cairan
 - Furosemid iv, dosis disesuaikan dengan urine & tanda kongesti
 - Bila tidak adekuat: tingkatkan dosis, ATAU tambahkan diuretik kedua (spironolakton atau tiazid) ATAU infus furosemid kontinu
- ❖ Hipotensi & peningkatan tekanan pengisian jantung
 - Inotropik/vasopresor intravena

