

MemoCharts Pharmacology
An Integrated Multimedia Approach to Learning
DRUG THERAPY FOR CONGESTIVE HEART FAILURE
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Diagnosis of CHF 2 major + 2 minor symptoms/signs

Major symptoms/signs: S3, rales, orthopnea, nocturnal dyspnea, weight gain, edema

Minor symptoms/signs: tachypnea, fatigue, exercise intolerance, swelling of lower extremities

Major or minor signs: elevated jugular venous pressure, pulmonary rales, third heart sound (S3), peripheral edema

Functional Classification of CHF

Class I: No symptoms/signs
Class II: Mild symptoms/signs
Class III: Moderate symptoms/signs
Class IV: Severe symptoms/signs

Improvement of LV Function Curve by Drugs

Drug Therapy for CHF

A. LV systolic dysfunction (EF < 40%) without symptoms (NYctAsym):
1. ACE inhibitors (ACEi) are the first-line drugs for asymptomatic LV dysfunction.
2. For ACEi, use an ACEi for the first class (if asymptomatic due to strength or intolerance, use an ARB). If intolerant due to hypotension or renal failure, use neprilysin inhibitors.
3. For all pts with LV dysfunction, use a diuretic and/or a beta-blocker if needed, or at least loop diuretic for class IV pts, and prazosin for class III pts, and prazosin for class II pts.

B. LV systolic dysfunction with symptoms (Class I or NYctAsym):
1. For all pts, use an ACEi for the first class (if asymptomatic due to strength or intolerance, use an ARB). If intolerant due to hypotension or renal failure, use neprilysin inhibitors.
2. For all pts with LV dysfunction, use a diuretic and/or a beta-blocker if needed, or at least loop diuretic for class IV pts, and prazosin for class III pts, and prazosin for class II pts.

C. Refractory or severe heart failure (Class III or Class IV):
1. Consider use of intravenous inotropes or inotropes in combination.
2. Consider use of intravenous inotropes or inotropes in combination.
3. Consider use of intravenous inotropes or inotropes in combination.

Pathophysiology and Therapeutic Rationales of CHF

Drugs Used in CHF

Class/Drug	Mechanism of Action	Vasodilation	Hemodynamic Effects	Major Uses in CHF
ACE Inhibitors	ACE inhibition, blocks and reduces Ang II and bradykinin, also blocks Angiotensin II receptor	++	++	++
ARBs	Angiotensin II receptor blockade	++	++	++
Other vasodilators	Hydralazine, Nitroglycerin, Nitroprusside	++	++	++
Diuretics	Loop diuretics, Thiazide diuretics, Osmotic diuretics	-	-	-
β-blockers	β1 and β2 blockade	++	++	++
Digoxin	Inhibits Na+/K+ ATPase, increases vagal tone	-	-	-
Inotropes	Dobutamine, Milrinone, Levosimendan	-	-	-
Antiarrhythmics	Class I, II, III, IV	-	-	-
Statins	HMG-CoA reductase inhibition	++	++	++
Antiplatelets	Aspirin, P2Y12 inhibitors	++	++	++
Anticoagulants	Warfarin, DOACs	++	++	++

MemoCharts Pharmacology: Drug Therapy for Congestive Heart Failure (Review chart) by Howard Shen

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