

### Appendix 3. Recommended Medications in the Treatment of Systolic Heart Failure

#### ACE inhibitors *Grade A Recommendation*

**Who?** All patients with heart failure or asymptomatic left ventricular dysfunction should receive ACEI unless there are contraindications (history of angioneurotic oedema, pregnancy, bilateral renal artery stenosis).

**How?** Start as soon as possible after diagnosis, and double dose at 2 week intervals (faster titration in symptomatic LV dysfunction, mild heart failure, hypertensives and in hospitalised patients). In patients who have renal insufficiency or are taking moderate to high dosages of diuretics, start at 50 percent of the initial ACE-inhibitor dosage. Aim for target dose, or highest tolerated dose.

**Use with caution** in: significant renal dysfunction (creatinine 2.5 mg/dl or 221 mol/L), hyperkalemia (5.5 mmol/L), symptomatic hypotension (systolic blood pressure 90 mmHg). Drug interactions to look out for: K sparing diuretics (including spironolactone), K supplements including "low salt" substitutes with high K content, NSAIDs, angiotensin receptor blockers

**Monitoring:** Clinical status and blood pressure at frequent intervals. Check renal function (creatinine and serum K) every one to two weeks during the titration phase. Advise patient to report adverse events: dizziness, symptomatic hypotension, cough.

Drug	Initial Dose	Target Dose
Captopril (Capoten®)	6.25 to 12.5 mg tid	50 to 100 mg tid
Enalapril (Vasotec®)	1.25 to 2.5 mg bid or 5 mg once daily	10 to 20 mg bid
Fosinopril (Monopril®)	10 mg once daily	20 to 40 mg once daily
Lisinopril (Zestril®)	2.5 to 5 mg once daily	20 to 35 mg once daily
Ramipril (Altace®)	1.25 to 2.5 mg once daily	5 mg twice daily or 10 mg once daily
Trandolapril (Mavik®)	1 mg once daily	4 mg once daily

#### β-blockers *Grade A Recommendation*

**Who?** Beneficial in most patients with heart failure– especially important when underlying ischemic heart disease or hypertension.

**How?** Usually *added* to ACE inhibitors or ARBs. For all β-blockers, slowly increase dosage every two weeks.

**Caution:** Symptoms may worsen before they improve.\*

Drug	Initial Dose	Target Dose
Bisoprolol (Monocur®)	1.25 mg once daily	10 mg once daily
Carvedilol (Coreg®)	3.125 mg twice daily	25 mg twice daily (50 mg if patient's weight is > 85 kg [187 lb])
Metoprolol (Lopresor® SR)	25 mg once daily (12.5 mg once daily in patients with severe heart failure)	200 mg once daily
Metoprolol, immediate release (Lopresor®)	6.25 to 25 mg twice daily (lower dosages in patients with severe heart failure)	100 mg twice daily

(continued on next page)



## Appendix 3—continued

### ARBs *Grade A Recommendation*

**Who?** Patients who cannot tolerate ACEIs or  $\beta$ -blockers

**How?** Check creatinine and potassium (S-Cr & K+) If  $>250$  mol/L do not start ARB, start hydralazine/nitrate combination and get a renal consult.

**Use with caution:** If symptomatic hypotension or creatinine elevated 30% above baseline in clinically volume **depleted**, first reduce/hold diuretic for 1-2 days (before reducing/holding ARBs). If baseline kidney function is  $<45$  ml/min (calculated GFR) do not start ARB. Start hydralazine nitrate combination. Angioedema may occur with ARBs as well as ACEIs.

**Monitoring:** Check creatinine and potassium levels every 1-2 weeks after each dose increment and then every 3-6 months.

Drug	Initial Dose (once daily dosing)	Target Dose (once daily dosing)
candesartan	4 mg	32 mg
irbesartan	75 mg	300 mg
losartan	25 mg	100 mg
telmisartan	40 mg	80 mg
valsartan	80 mg	320 mg

### Other agents *Grade A-B Recommendations*

Drug	Initial Dose	Target Dose
<b>Digoxin</b> Grade B Recommendation: May reduce the number of hospitalizations for heart failure; no mortality benefit; narrow therapeutic window	0.125 to 0.25 mg once daily Start at the lower dosage in patients with mild renal insufficiency.	Usually dose of 0.125 to 0.25 mg once daily
<b>Spirolactone (Aldactone)</b> Grade A Recommendation, Level 1 evidence only for patients already on ACEI $\pm$ beta-blocker who are in <b>severe</b> symptomatic heart failure (i.e., NYHA classes III or IV); note: severe hyperkalemia is an important safety concern so be sure K+ $<5.0$ and creatinine $<200$ mg/L.	25 to 50 mg once daily or every other day	25 to 50 mg every other day or every day

#### Sources:

McConaghy JR, Smith SR. Outpatient Treatment of Systolic Heart Failure. AFP 2004;70(11):2157-64, 2171-2.

CCS Guidelines 2001, reviewed 2003

Guidelines and Protocols British Columbia Congestive Heart Failure Collaborative, 2003.

NICE. CG5 Chronic heart failure: Management of chronic heart failure in adults in primary and secondary care. 9 October 2003

<http://www.nice.org.uk/> accessed 12Sept05

