

# Can I Improve the Quality of Life for my Patient with Heart Failure?

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# Heart Failure

NZ

12,000 admissions/y (7,000 patients)

Costs 2% health budget

30% die within first year after admission to  
hospital

Condition predominantly of the elderly



# Heart Failure

## Initial Assessment

### Symptoms

- SOB
- Fatigue
- Ankle oedema

### Signs

- Elevated JVP
- Deviated apex beat, S3
- Basal inspiratory crackles

# Heart Failure - Diagnosis

Diagnosis is difficult

Only 1/4 - 1/3 confirmed by cardiologist

# Heart Failure Assessment

## Initial

- Underlying cause?
- Behaviours associated with worsening HF?  
(smoking, alcohol, illicit drugs)
- Examination – wt, volume status
- Na, K, urea, creatinine, urate, TFTs, lipids,  
glucose, Hb, MSU
- ECG, CXR, echo

# Evaluation of the Cause of Heart Failure

## The History

- Hypertension
- Diabetes
- Coronary or peripheral vascular disease
- Dyslipidaemia
- Valvular heart disease including rheumatic
- Atrial Fibrillation
- Myopathy
- Mediastinal irradiation
- Obstructive sleep apnoea

# Evaluation of the Cause of Heart Failure

## The History

- Exposure to cardiotoxic agents
- Current and past alcohol consumption
- Smoking
- Collagen vascular disease
- HIV
- Thyroid disorder
- Pheochromocytoma
- Obesity

# Evaluation of the Cause of Heart Failure Family History

- Atherosclerotic disease
- Sudden cardiac death
- Myopathy
  - Cardiomyopathy
  - Skeletal myopathy
- Conduction system disease
- Tachyarrhythmias

# Heart Failure

## Initial Assessment

### Symptoms

- SOB
- Fatigue
- Ankle oedema

### Signs

- Elevated JVP
- Deviated apex beat, S3
- Basal inspiratory crackles

# BNP

## Use

SOB with uncertain diagnosis

## Levels rise with

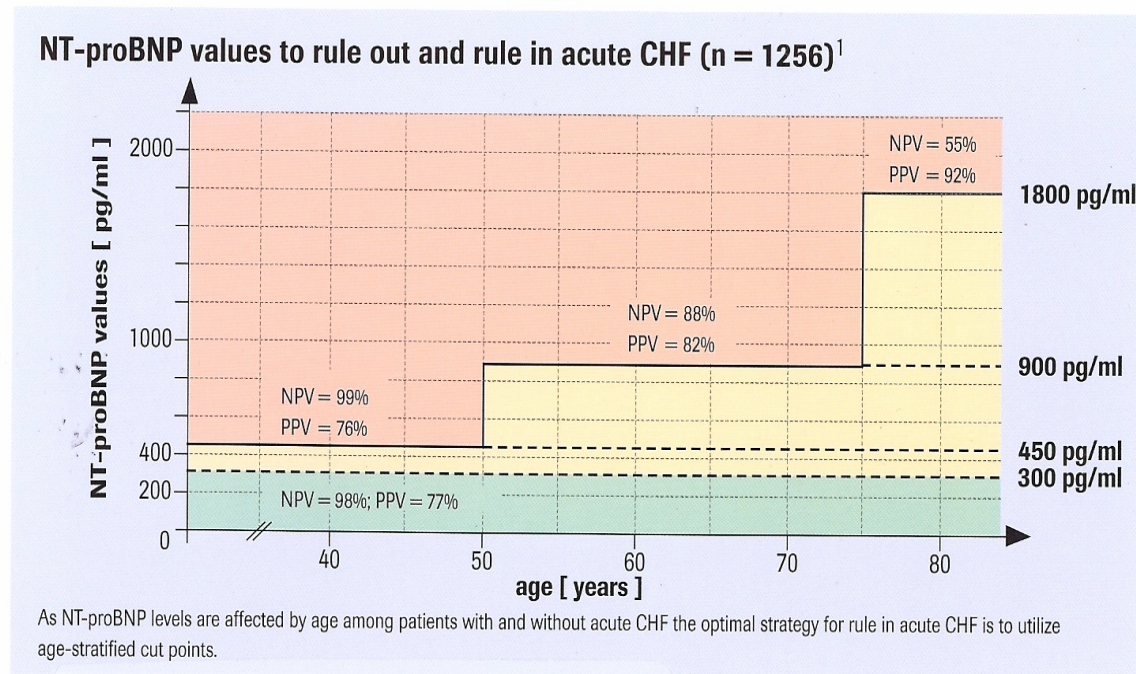
↑LV filling pressure, acute MI/ischaemia,  
PE, CORD, CRF

↑age, women

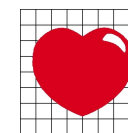
## Level lower

obesity

# BNP



Conversion Factor:  $\text{pg/mL} \times 0.118 = \text{pmol/L}$



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# NT-proBNP

Acute HF unlikely

NT-proBNP < 35.4pmol/L

Age stratified cutpoints (pmol/L)

Patient age	HF unlikely	HF likely
<50	35.4 – 53.1	>53.1
50-75	35.4 – 106.2	>106.2
>75	35.4 - 212.4	>212.4

# Heart Failure

## Ongoing Review

- Ability to perform daily activities
- Weight, volume status
- Diet, sodium intake, alcohol, drugs
  
- Monitor Na, K, creat/ eGFR, Hb

# Stages in the Development of Heart Failure

## Stage A

Groups at risk of HF with normal LV fn  
CAD, ↑BP, DM

## Stage B

asymptomatic  
LVH ± LV impairment

## Stage C

Current or past symptoms + structural heart disease

## Stage D

Refractory HF

# Heart Failure Management

## Stage A (high risk)

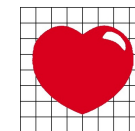
- BP < 140/85 (DM < 130/80)  
Optimal control → ↓ risk 50%
- Lipids LDL < 1.8, (DM < 1.5)
- DM (women 3x ↑risk)
- Metabolic syndrome (trials underway)
- Stop smoking, no illicit drugs, avoid Xs alcohol
- AF/ tachycardia – heart rate control  
Consider cardioversion
- Treat IHD
- Treat thyroid disease
- No evidence of benefit from nutritional supplements
- ACEI/ ARB may reduce risk

# Heart Failure Management

## Stage B

asymptomatic LV dysfunction / LVH

- Remedy structural problem (if appropriate)
  - Coronary revascularisation
  - Valve surgery
  - Control atrial fibrillation
- Post MI
  - Beta blockers (metoprolol, carvedilol)
  - ACEI/ARB
- LV impairment
  - Beta-blockers, ACEI/ARB
  - Avoid digoxin unless AF
  - CCB may be harmful
- LVH
  - ACEI/ARB
  - Metoprolol/ Verapamil
- No evidence of benefit from nutritional supplements



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# Heart Failure Management

## Stage C

### Current or Prior Symptoms of HF

- Diuretics
- ACEI/ARB – doses cilazapril 5mg, quinapril 20mg bd  
candesartan 32mg, losartan 50mg  
Consider ACEI + ARB if still symptomatic
- Beta-blockers – metoprolol CR 190mg, (avoid metoprolol tartrate)  
carvedilol 25mg bd
- Avoid or withdraw NSAIDs
- Review CCB, antiarrhythmic therapy
- Spironolactone – class III, IV. 12.5 – 25mg.  
Not if eGFR < 30, stop if K > 5.5
- Digoxin - ↓hospitalisation

# Heart Failure Management

## Initiating Treatment

- Diuretic first for symptomatic relief
- ACEI – starting dose dependent on BP  
change to ARB if persistent cough
- Beta blocker – initiate after ACEI unless symptomatic ischaemia or arrhythmia
- Low BP
  - carvedilol 3.25mg bd                      or metoprolol ½ 23.75mg
  - double dose fortnightly as tolerated
- Late addition of spironolactone if full dose ACEI and beta blocker and satisfactory renal function
- Add ARB (to ACEI) if still symptomatic

# Heart Failure Management

## Stage C

Symptomatic, normal LV systolic function

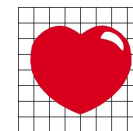
- Mainly elderly women with  $\uparrow$ BP, DM or both
- Often associated with AF or coronary disease
- Similar morbidity and mortality to abnormal LV function
- Aim for
  - BP control
  - Ventricular rate control with AF
  - Consider cardioversion to SR
  - Consider coronary disease and revascularisation

# Heart Failure Management

## Stage C – Symptomatic

### Adjuvant therapy

- Multidiscipline Team – GP, hospital nurse and cardiologist, patient and family
- Patient education and daily weigh at home
- Avoid NSAIDs, amphetamines/stimulants
- Exercise training
- Biventricular pacing for cardiac dyssynchrony
- AICD – automated implantable cardioverter – defibrillator
- AF/ tachycardia ablation
- Nutritional and hormonal supplementation is not recommended except omega 3 fatty acids
- Anticoagulation is not routinely recommended



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# Heart Failure Management

## Stage D

### Refractory End-Stage

- Meticulous control of fluid retention
- Referral for cardiac transplantation in potentially eligible patients
- End-of-life/ hospice care

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Before prescribing metoprolol (Betaloc CR) or candesartan (Atacand) please refer to the full product information provided

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Before prescribing Betaloc CR or Atacand, please refer to the abridged product information provided below

**Atacand abridged prescribing information:** Candesartan cilexetil 4 mg, 8 mg and 16 mg. **Indications:** Hypertension; Heart failure and left ventricular systolic dysfunction **Dosage and Administration** Hypertension: Adults and elderly: recommended initial and maintenance dose is 8 mg once daily with or without food. For patients requiring further blood pressure reduction increase dose to 16 mg once daily. Heart failure: Recommended initial dose is 4mg once daily. Up-titration to the target dose of 32 mg once daily or highest tolerated dose at intervals of at least two weeks. Children: not recommended. **Contraindications** Hypersensitivity. Pregnancy and lactation. **Precautions** Hypotension in heart failure patients. Renal artery stenosis. Intravascular volume depleted – this condition should be corrected prior to Atacand administration. Severe renal and hepatic impairment. Patients with kidney transplants. Aortic and mitral valve stenosis. Hyperkalaemia. Patients whose vascular tone and renal function depends on the activity of the renin-angiotensin-aldosterone system. **Adverse Effects** Back pain, hypotension, hyperkalaemia, renal impairment, increases in creatinine, urea and potassium. Rarely: leukopenia, neutropenia, agranulocytosis, hyponatraemia, increased liver enzymes, Angioedema, rash. **Interactions** No clinically significant interactions have been identified. **Presentation** Blister packs of 28 or 30 tablets. **Medicine Classification** Prescription Medicine Atacand is a fully funded prescription medication. Special authority and criteria apply. A prescription charge will still apply. Please refer to New Zealand Pharmaceutical Schedule. For full prescribing information please refer to the manufacturer's datasheet available at [www.medsafe.govt.nz](http://www.medsafe.govt.nz). 4 May 2005. © Atacand is a trademark of the AstraZeneca group of companies. AstraZeneca Limited P O Box 1301 Auckland. Telephone (09) 623 6300 or Freephone 0800 363 200 Facsimile (09) 623 6301.

**Betaloc CR abridged prescribing information** Metoprolol succinate 23.75, 47.5, 95 and 190 mg controlled release tablets. *Cardioselective beta-blocker* **Indications** Hypertension, angina pectoris, symptomatic mild to severe chronic heart failure as an adjunct to other heart failure therapy, cardiac arrhythmias, especially supraventricular tachycardia, reduction of ventricular rate in atrial fibrillation and ventricular extrasystoles, maintenance treatment after myocardial infarction, hyperthyroidism, functional heart disorder with palpitations, migraine prophylaxis. **Dosage and Administration** Betaloc CR tablets are intended for once daily dosing and are preferably taken with the morning meal. Betaloc CR tablets and divided halves should not be chewed or crushed. Swallow with liquid. Dosage should be individually adjusted. Hypertension 47.5-190 mg once daily in the morning. Chronic heart failure Initially 23.75 mg once daily for two weeks (patients with NYHA functional classes III-IV, initially half a 23.75 mg tablet for the first week). Double dose every second week up to 190 mg once daily or to the highest tolerated dose. Angina Pectoris, Cardiac Arrhythmias, Functional Heart Disorder with Palpitations, Migraine Prophylaxis and Hyperthyroidism 95-190 mg once daily in the morning. Myocardial Infarction Acute stage - administer IV metoprolol (3 x 5 mg bolus at 2 minute intervals) as soon as possible on arrival in hospital. In patients who tolerate the full IV dose (15 mg), commence oral treatment with 47.5 mg tablet four times daily starting 15 minutes after the last IV injection and continuing for 24 hours. Follow with 95 mg tablets twice daily for a further 24 hours. If the full IV dose is not tolerated, initiate oral treatment with a lower dose. Maintenance following acute intervention - generally 190 mg once daily. **Precautions** Peripheral arterial circulatory disorders, phaeochromocytoma, anaesthesia. Withdraw treatment gradually when discontinuing. **Pregnancy, lactation.** **Contraindications** Bronchial asthma or other obstructive lung disorders. Grade 2 and 3 A-V block and intranodal A-V block. Unstable decompensated cardiac heart failure (pulmonary oedema, hypoperfusion or hypotension) and patients with continuous or intermittent inotropic therapy acting through beta-receptor agonism. Clinically relevant sinus bradycardia, sick-sinus syndrome, cardiogenic shock, severe peripheral arterial circulatory disorder. **Adverse Effects** Bradycardia, postural disorders, cold hands and feet, palpitations. Fatigue, dizziness, headache. Nausea, abdominal pain, diarrhoea, constipation. Dyspnoea on exertion. Refer to datasheet for further information. **Interactions** Sympathetic ganglion blocking agents, other beta-blockers including eye drops and monoamine oxidase inhibitors. Clonidine discontinuation. Calcium antagonists of the verapamil and diltiazem type and/or antiarrhythmic agents. Inhalation anaesthetics. Enzyme-inducing and -inhibiting substances ie rifampicin, cimetidine, alcohol and hydralazine and selective serotonin re-uptake inhibitors (SSRIs) eg. paroxetine, fluoxetine and sertraline. Indomethacin or other prostaglandin synthetase inhibitors. Oral antidiabetic agents. **Presentation** Blister memory packs containing 30 tablets **Medicine Classification** Prescription Medicine Betaloc CR is a fully funded medicine. A prescription charge will still apply. For full prescribing information please refer to the manufacturer's datasheet available at [www.medsafe.govt.nz](http://www.medsafe.govt.nz). 20 May 2004 Trade marks herein are property of the AstraZeneca group. AstraZeneca Limited P O Box 1301 Auckland. Telephone (09) 623 6300 or Freephone 0800 363 200 Facsimile (09) 623 6301.