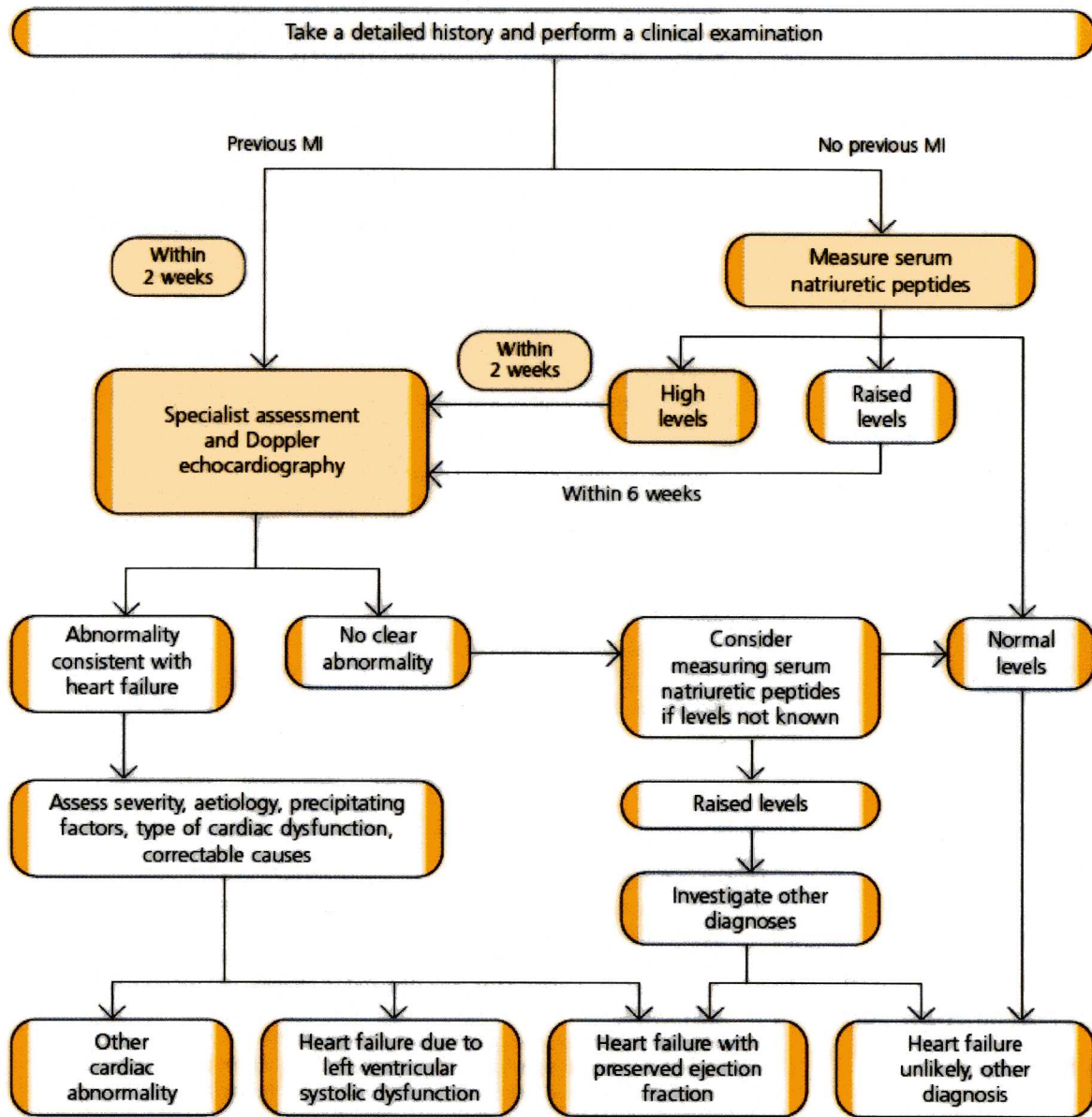


Diagnosing heart failure



Symptoms and signs of heart failure

	sensitivity %	specificity %
Dyspnoea	66	52
Ankle swelling	23	80
Orthopnoea	21	81
PND	33	76
Fatigue		

Signs: tachycardia, displaced apex, gallop rhythm, elevated JVP, leg and sacral oedema, hepatomegaly, ascites.

Other investigations:

FBC
 Biochemical profile
 TFT
 Fasting sugar and lipids
 Urinalysis
 ECG
 CXR
 Peak flow or spirometry

Serum natriuretic peptides:

Expensive test, please do not use as breathlessness screen !

	NTPro-BNP	BNP
High	> 2000 pg/ml (236pmol/l)	> 400 pg/ml (>116 pmol/l)
Raised	400-2000 pg/ml (47-236pmol/l)	100-400pg/ml (29-116 pmol/l)
Normal	< 400pg/ml (47pmol/l)	< 100 pg/ml (< 29 pmol/l)

Other causes of elevated BNP/NT-BNP include ischaemia, tachycardia, LVH and chronic renal failure.

BNP may be normal in very well controlled heart failure.

Differential diagnoses to consider:

Obesity
 Chest disease including COPD
 Venous insufficiency lower limbs
 Drug induced ankle swelling esp calcium ch blockers
 Drug induced fluid retention eg NSAIDs
 Hypoalbuminaemia
 Renal or hepatic disease
 Pulmonary embolism
 Depression and/or anxiety
 Severe anaemia
 Thyroid disease

Aetiology

Ischaemic heart disease
 Hypertension
 Valvular disease
 Dilated cardiomyopathy
 Hypertrophic cardiomyopathy
 Pulmonary disease
 Alcohol
 Chemotherapy
 Tachycardiomyopathy
 etc

NYHA Classification

- I no limitations, no symptoms with ordinary physical activity
- II slight limitation, symptoms with ordinary activity
- III marked limitation, symptoms with less than ordinary activity
- IV breathless at rest, any physical activity increases symptoms

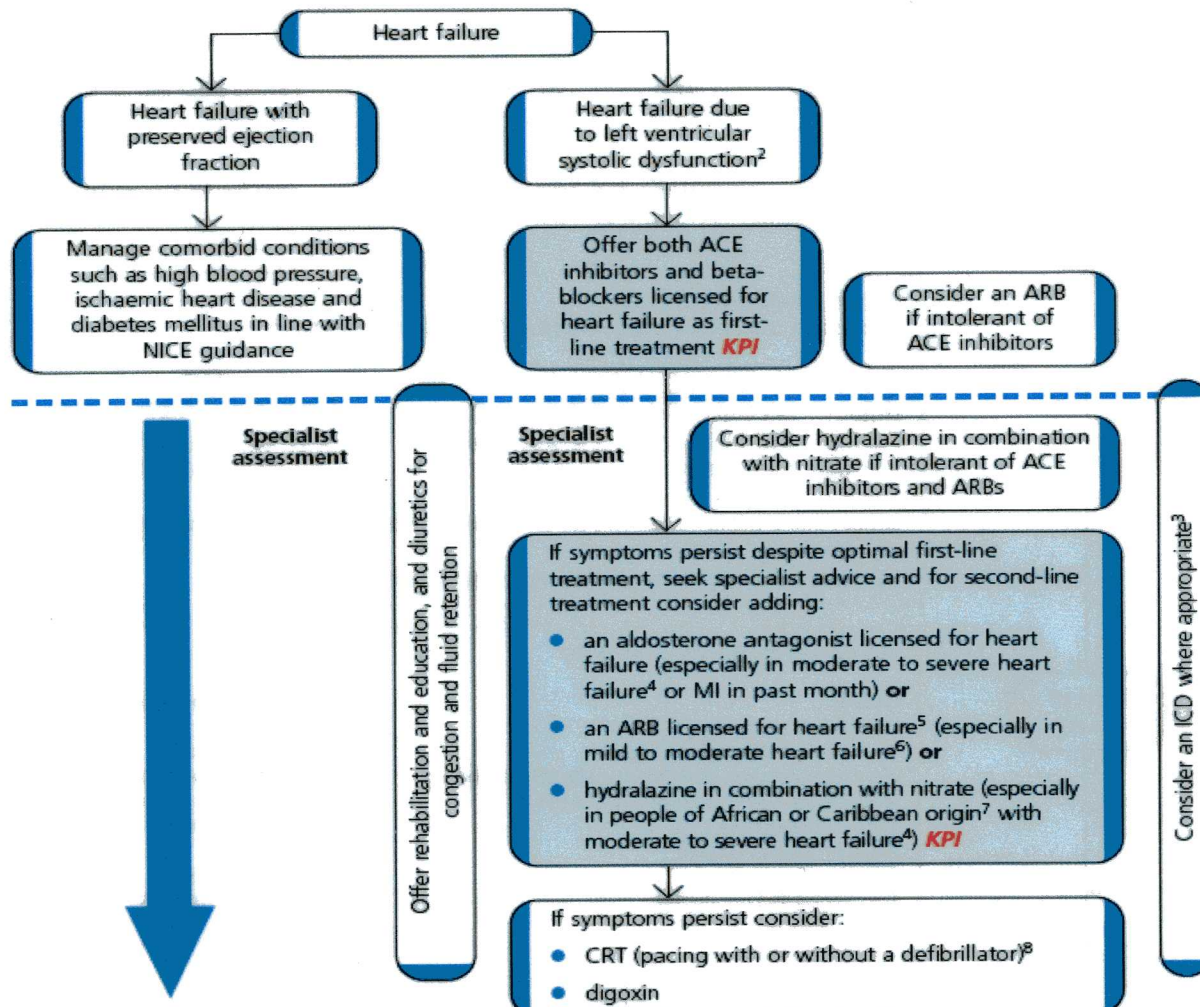
Symptoms: dyspnoea, fatigue, palpitations

Diastolic HF (Heart Failure with Preserved Ejection Fraction - HFPEF)

Just because LV function is normal, doesn't mean it isn't heart failure but only consider if HF-PEF if BNP elevated. Due to reduced ventricular filling in diastole eg stiff ventricle or loss of atrial kick in AF. Typical picture is elderly hypertensive with fluid retention. Difficult to diagnose, echocardiogram may show 'diastolic markers' or left ventricular hypertrophy but absence of these doesn't necessarily rule it out.



Treating heart failure



Drug Treatment for Heart Failure Due to LVSD

ACE inhibitors

- Start low and titrate upwards at intervals of every 2 weeks
- Measure urea, creatinine and electrolytes with each dosage increment
- Up-titration to be limited by symptomatic low blood pressure and renal function only if creatinine increases by > 50% or to > 200mmol/l.
- Avoid in significant aortic stenosis

Beta-blockers

- 'Start low and go slow', dosage increments every 2-4 weeks
- Monitor P, BP and clinical status after each titration
- Warn patients that they may experience transient mild symptomatic deterioration but should improve with continued treatment
- Switch stable patients on βB for co-morbidity to a βB licensed for heart failure, 50mg of atenolol is approx equivalent to 10mg bisoprolol
- Up-titration to be limited by symptomatic low blood pressure or by bradycardia (if symptomatic or heart rate < 50)
- Most patients with COPD without reversibility will tolerate
- Effective and safe in elderly, PVD, DM, ED.

Aldosterone antagonists

- Option if symptomatic in spite of optimised treatment esp in NYHA III-IV
- Monitor renal profile at 1w, 1m and every 6m if on ACEI/ARB

ARBs

- Consider as alternative to ACEI if intolerant
- Consider addition to ACEI if unable to take βB , care with renal function!
- On specialist advice in addition to ACEI and βB if persistent symptoms
- ACEI+ βB + either ARB or aldosterone antagonist, NOT both

Digoxin

- Usual dosage 125mcg; no need to monitor levels

Aspirin

- use only if other indication eg CHD/PVD

Target doses	Ramipril	10mg/day	Bisoprolol	10mg od
	Enalapril	20mg bd	Carvedilol	50mg bd > 80Kg
	Lisinopril	35mg / day		25mg bd < 80Kg
	Candesartan	32 mg daily	Nebivolol	10mg daily

Monitoring

Monitor all patients. Include:

- Clinical assessment of functional capacity, fluid status, cardiac rhythm (min at least pulse), cognitive status and nutritional status
- Re-iterate lifestyle advice especially diet, exercise, smoking
- Review of drug treatment include need to change and monitoring for side effects
- Minimum of urea, electrolytes, creatinine, eGFR

Monitor at short intervals (days to 2 weeks) if clinical condition or drug treatment has changed, otherwise monitor at least 6 monthly.

Diastolic heart failure/HF-PEF

Manage fluid retention with diuretics
Currently no trial evidence for ACEIs or beta blockers but look for an excuse to use these anyway
If AF, consider adding digoxin
Treat co-morbidities esp. hypertension

Palliative Care phase if.....

NYHA IV in spite of optimal treatment.
Clinician would not be surprised if died within 12 months.

Lifestyle advice

- Exercise:** encourage regular exercise within capabilities
- Diet:** encourage salt free diet
- Smoking:** strongly advise patients not to smoke
- Alcohol:** advise patients with alcohol related heart failure to abstain
- Sexual activity:** be prepared to discuss
- Vaccination:** offer annual vaccination against influenza and one-off vaccination against pneumococcus
- Driving:** consult DVLA guideline re HGV/PSV

Drugs to avoid

- NSAIDs
- CCBs except amlodipine
- Erythromycin
- Tricyclics
- Other drugs that prolong QT
- Steroids
- Lithium
- Class I antiarrhythmics
- Some others!

CRT (resynchronisation pacing +/- ICD)

* Broad QRS and low EF = HIGH risk*

It is recommended that all pts with:

- QRS > 120ms
- LVEF \leq 35%

are referred to a HF specialist for treatment optimisation and consideration of device therapy.
NB. CRT without ICD is relatively cheap and has significant short term symptom benefit as well as mortality benefit, often appropriate in the elderly.please check QRS duration.