

MANAGEMENT OF HEART FAILURE PATIENTS IN PRIMARY CARE

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With all of us in mind.

What is Heart failure

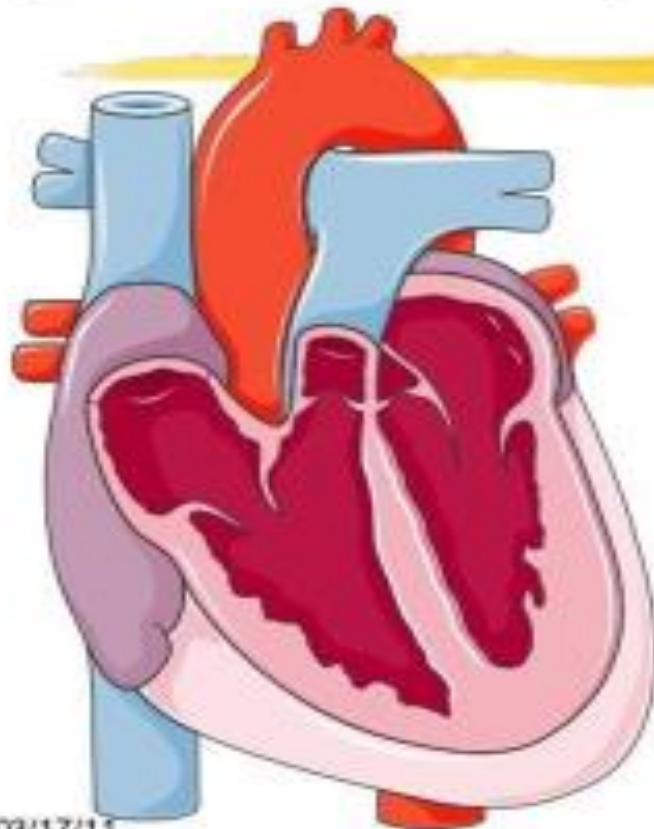
- The heart is a powerful muscle that delivers blood and oxygen around the body through a regular pumping action.
- Heart Failure is the term used to describe a set of symptoms that occur when the heart fails to deliver as much blood and oxygen around the body as it should.

Normal Heart and Heart Failure

NHS

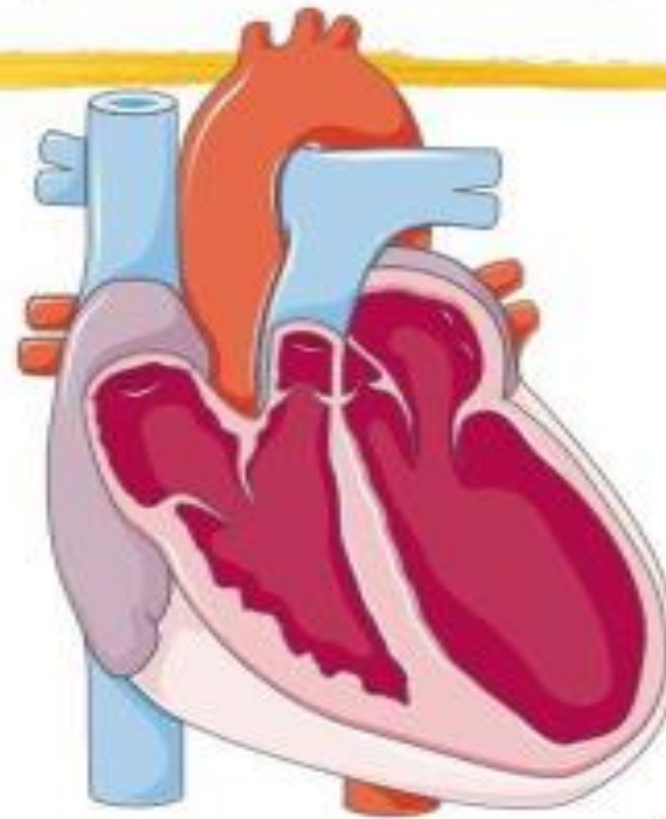
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NORMAL HEART



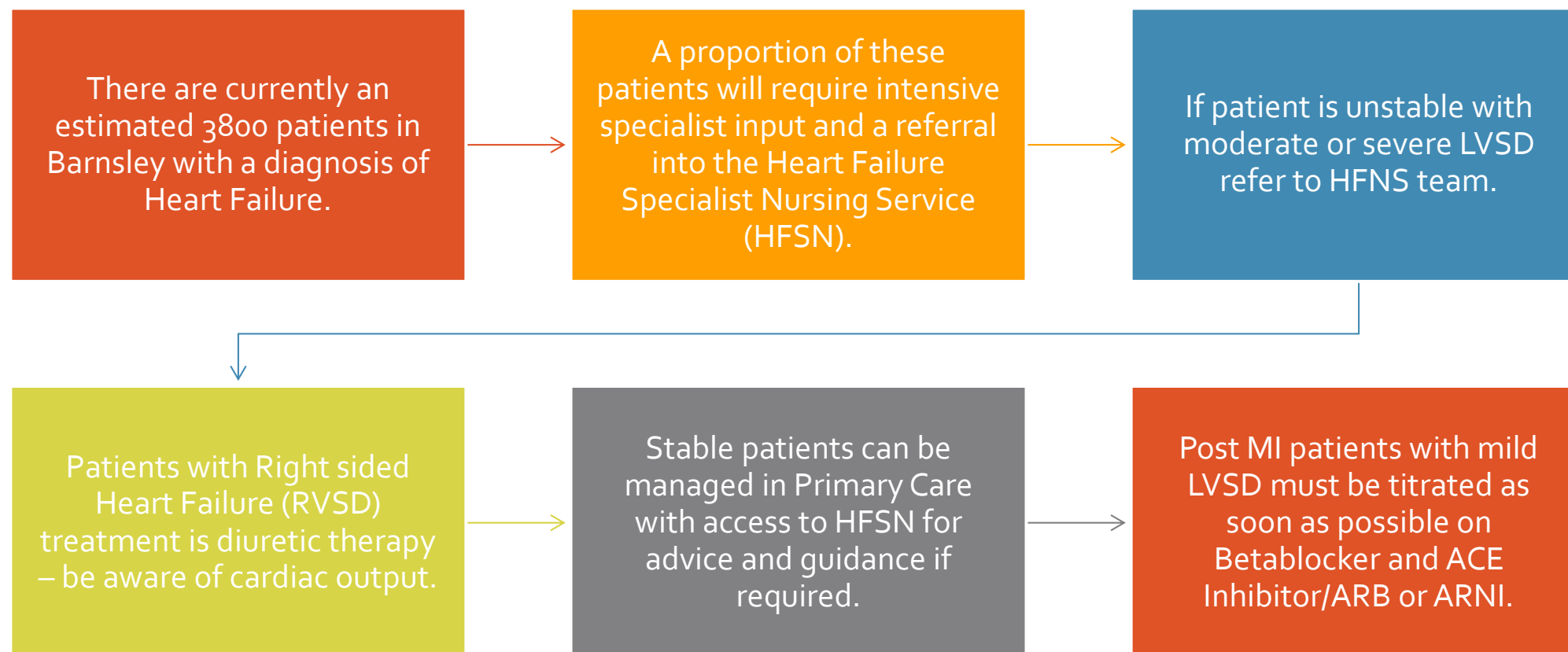
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HEART FAILURE

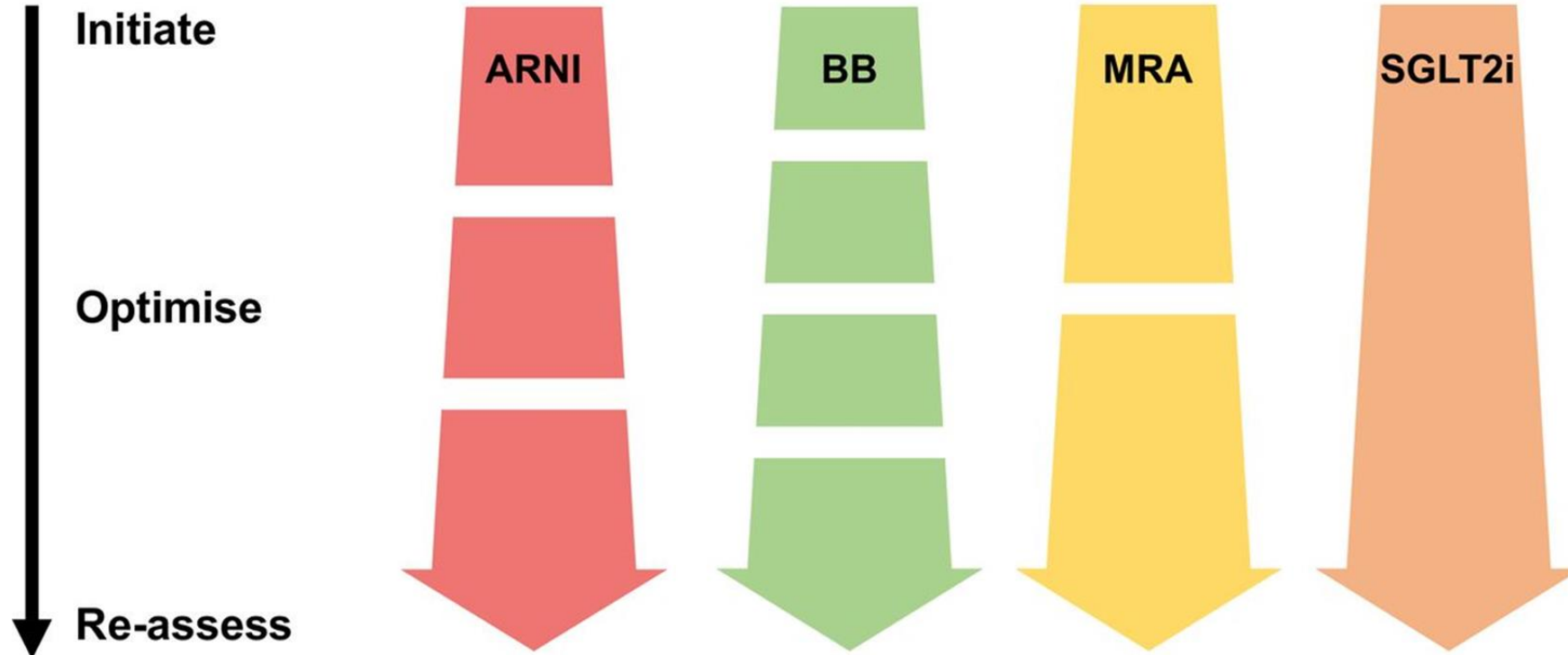


With **all of us** in mind.

Heart Failure in Barnsley



The Four Pillars of Heart Failure



Consider additional therapies

New Diagnosis and mild Left Ventricular Systolic Dysfunction (LVSD).

- Newly mildly diagnosed patients and post MI patients require their Betablocker and Ace Inhibitor/ARB or ARNI titrating as quickly as possible to prevent worsening of LV but can also resolve ventricular impairment from becoming permanent.
- The pathway will guide recommended titrations and remember your patient's condition will determine how far to go with titrations.
- The order of therapy is dependent on patient presentation and treat accordingly.

NYHA Classifications

- Mild, Moderate and Severe Heart Failure which can be diagnosed by an echocardiogram or CMRI. Not all ECHOs will have Ejection Fraction calculated as per BHNFT practice but will state which category.

I to IV Levels of how the symptoms affect your daily life.

- **I** no limitation with physical activity. Ordinary physical activity does not cause undue tiredness, palpitations or Shortness Of Breath.
- **II** slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in tiredness, palpitations, or SOB.
- **III** Marked limitation of physical activity, Comfortable at rest, but less than ordinary activity causes tiredness, palpitations or SOB.
- **IV** Unable to carry out any physical activity without discomfort and tired and SOB at rest. If any physical activity is undertaken, discomfort increases.

ACE inhibitors

Ramipril, Lisinopril, Perindopril, Enalapril.
(ARNI, Entresto, if commenced).

The recommendation to prescribe an ACE-inhibitor to all people with heart failure with reduced ejection fraction (HF-REF) is based on the evidence and efficacy in reducing mortality and morbidity in NICE guidelines, (NICE, 2018) and the European Society of Cardiology (ESC,2021).

- U&E and renal function:- before and 2 weeks after starting an ACE inhibitor, and after each dose increment. If $K^+ > 5.5$ half the dose, > 6 stop.
- If AKI occurs, don't stop completely (reduce dose). Expected to have 25% increase in creatinine level.
- During initiation, renal dysfunction can occur due to a drop in renal perfusion pressure and subsequent decrease in glomerular filtration. This is attributed to the drug's preferential vasodilation of the renal efferent arteriole, which impairs the kidney's ability to compensate for low perfusion states. (Nih.Gov 2018).
- Contraindication:- Aortic stenosis. Previous angioedema
- Low dose and titrate upwards at short intervals (for example, every 2 weeks) until the target or maximum tolerated dose is reached.

DRUG	Low starting dose	Normal starting dose	Usual maintenance dose	Max Dose
Ramipril	1.25mg OD	1.25-3.5mg OD	2.5mg – 10mg OD	10mg OD
Lisinopril	2.5mg OD	10mg OD	20mg OD	35mg OD
Perindopril	2mg OD	4mg OD	4 – 8mg OD	8mg OD
Enalapril	2.5mg OD	5mg OD	20mg OD	40mg OD

Lower starting doses are required for people who are more prone to the adverse effects of ACE inhibitors (such as elderly, frail or renally impaired).

Common side effects of ACE

- Cough
- Reduced renal function, including low sodium and raised potassium.
- Runny nose
- Skin rash
- Dizziness
- Nausea, Vomiting, Diarrhoea.
- Headache
- Feeling tired
- Vertigo
- Hypotension
- Increased Falls risk
- Dry mouth

Uncommon side effects of ACE

- Angioedema
- Chest Pain
- Extreme hypotension
- Depression
- Confusion
- Photosensitivity
- Jaundice

ARB Titration

- Candesartan, Losartan, Valsartan
- Only if the patient develops adverse events with ACEI.
- Combination of ACEI and ARB NOT recommended.
- Continue to titrate up to MAX dose unless patient feels unwell, BP too low or renal function becomes impaired.

DRUG	Low starting dose	Usual starting dose	Usual maintenance dose	Maximum dose
Candesartan	2mg – 4mg	4mg-8mg	8mg-32mg	32mg
Losartan	12.5mg OD	25mg OD	25-50mg OD	150mg OD
Valsartan	40mgOD	80mg OD	80mg-160mg	320mg

Side effects of ARB

- **Common**

- Abdominal pain
- Back pain
- Nausea, dizziness, headache
- Hypotension & postural hypotension
- Decrease in renal function, hyperkalaemia

- **Uncommon**

- Angioedema
- Skin reactions
- Thrombocytopenia (low platelets).

Tips for management of patient symptoms on ACE or ARB.

- If the cough is mild to try and cope with the ACE rather than switching immediately to ARB as slightly better for LV function.
- Only titrate or initiate one drug at a time to observe for adverse reactions.
- Although usually prescribed OD, dose can be split to help with dizziness or prevent interactions with other medications
- Taking at bedtime, helps for side effects to wear off by morning.
- Use alongside antihistamines if skin rashes mild.
- Try to avoid taking at same time as diuretics if BP low
- Consider reducing Loop diuretic if renal impairment occurs and if needing to titrate ACEi further.

Beta-Blockers.

Bisoprolol, Nebivolol, Carvedilol, Metoprolol.

- Introduce beta-blockers in a '**start low, go slow**' manner. Assess heart rate and clinical status after each titration. Measure blood pressure before and after each dose increment of a beta-blocker
- **Do not withhold treatment with a beta-blocker solely** because of age or the presence of peripheral vascular disease, erectile dysfunction, diabetes, interstitial pulmonary disease or chronic obstructive pulmonary disease.
- **Switch people** who are already taking a beta-blocker such as Atenolol, Propranolol for angina, anxiety, hypertension or thyroid control to a beta-blocker licensed for heart failure as above.

Beta Blocker

The table represents examples of titration of beta blockers

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 12
Bisoprolol (OD)	1.25mg	2.5mg	3.75mg	5mg	5mg	5mg	5mg	7.5mg	10mg
Carvedilol (BD)	3.125mg	3.125mg	6.25mg	6.25mg	12.5mg	12.5mg	25mg	25mg-50mg (if >85kg)	
Nebivolol (OD)	1.25mg	1.25mg	2.5mg	2.5mg	5mg	5mg	10mg		

Metoprolol

In the event of patients with Respiratory conditions who are breathless with betablockers, consider changing to Metoprolol to see if better tolerated before stopping Betablockers entirely. Two weekly titration as below.

Metoprolol	12.5mg BD	25mg bd	50mg bd	100mg bd Max dose	
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Beta-Blockers.

Bisoprolol, Nebivolol, Metoprolol, Carvedilol.

Recommended heart rates for different heart related causes.

- Post MI the recommendations are 50-60 bpm to allow heart to heal.
- In Heart Failure heart rate of 60-70 bpm is preferred for continued cardiac output.
- In AF heart rate recommended at 70-80 bpm at rest.

Beta Blocker - Side effects

- Heart block/Bradycardia (symptomatic)
- PVD
- Erectile dysfunction
- Dizziness
- Asthma/ Bronchospasm
- Aggravation of skin disorders ie psoriasis
- Tiredness
- Nightmares/lucid dreams
- Depression
- Abdominal discomfort
- Dry eyes

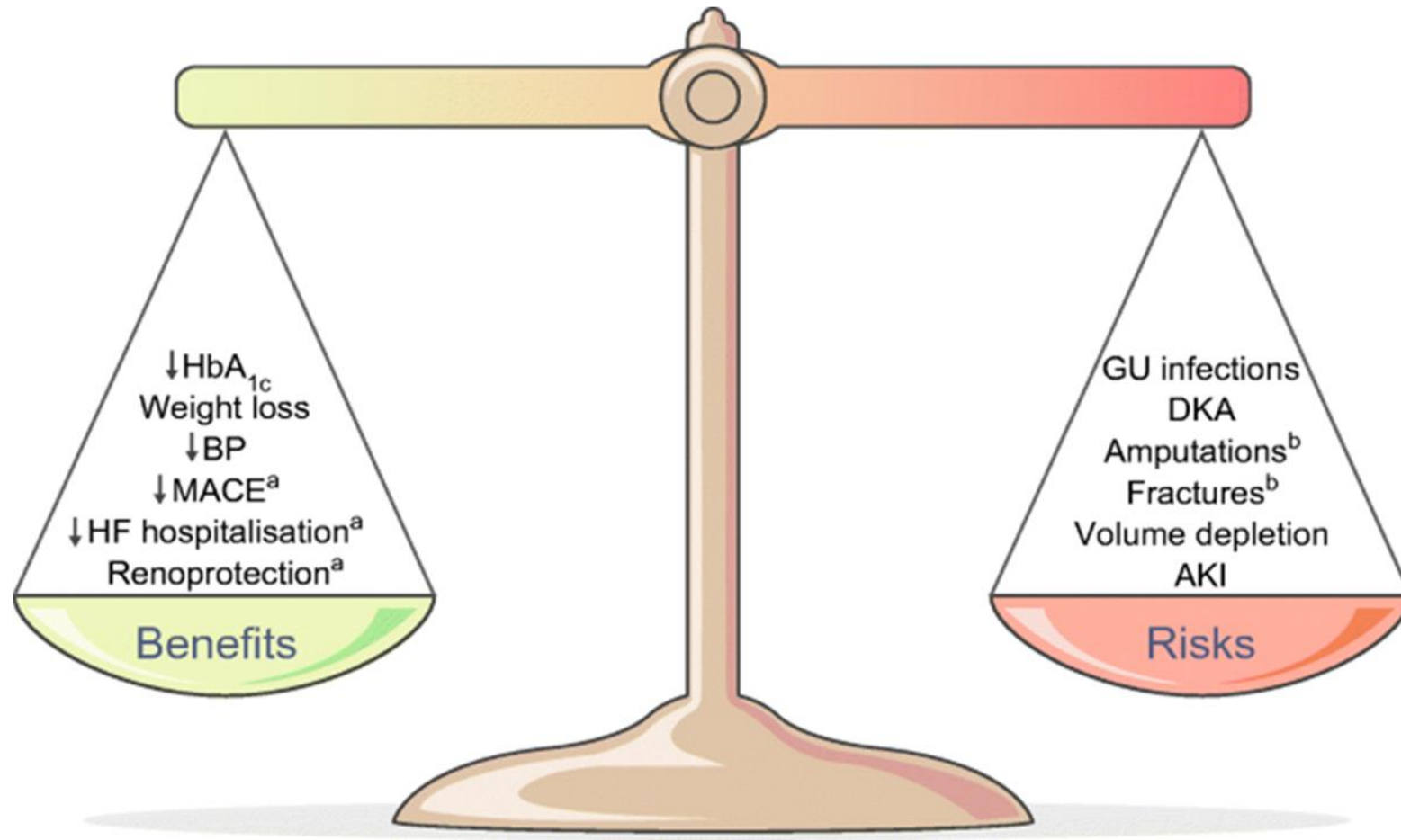
Tips for Beta Blocker use.

- In AF patients require higher heart rate and recommended rate should be 70-80 bpm.
- Over beta-blocking can cause heart to struggle maintaining cardiac output.
- Consider splitting dose if BP low and not having at same time as ACEi.
- If patient symptomatic, try at night.
- If patients experience palpitations in the afternoon move betablocker to lunchtime.
- Refer to Erectile Dysfunction specialist team if required.
- Does not require routine bloods, just regular manual pulse checks and BP.
- If heart rate low reduce in first instance but if very bradycardic (<45bpm) stop.

MRA and SGLT2i

- These will be initiated by the Heart Failure Team however patients may be discharged to your care following optimisation by HF team or Cardiology.
- Ensure follow up in 6 months with bloods as per NICE guidelines.
- MRA: Spironolactone /Eplerenone used for moderate/severe HF help preserve LV function and reduce oedema. Is potassium sparing - monitor Potassium levels at 6-month checks.
- SGLT2i: Dapagliflozin /Empagliflozin - only in HF. Now getting licenced for mild/HFPEF patients so you may come across this more from Discharge. Could commence for mild with diabetes so long as not type 1 without HFSN input. Check bloods after 4 weeks with this as gives false decline in renal function.

Adverse Effects



Loop Diuretics

- Use of loop diuretics is first line for treatment of oedema either pulmonary or peripheral.
- Furosemide
- Bumetanide
- This medication helps pass more fluid
- This reduces swelling/Improves breathing and lowers blood pressure
- This medication can be increased or decreased dependant on symptoms.
- Encourage able patients to titrate themselves eventually.

Loop continued

- Encourage oral intake of fluids as important to continue drinking even though on diuretics.
- Monitor renal function for deterioration. Low dose can help with breathlessness if oedema not present.
- Not potassium sparing so watch for drop in potassium and contraindicated in low potassium patients.
- If been on either Frusemide or Bumetanide for long time, consider changing to other as can become tolerant.

Patient self-monitoring

- Weigh self daily initially, to obtain base weight. If puts on 4lbs over couple of days inform team. Look for increase in pitting oedema.
- Record BPs and Heart Rate (HR) at home to bring to clinic as can have false reading (White Coat) in clinic. Good baseline.
- Eat healthy diet and monitor fluid intake to 2 litres daily unless instructed by HFSN or Cardiologist.
- Record symptoms for likely patterns.
- Avoid NSAIDs in tablet form in Heart Failure.
- Low Salt intake NO LOSALT/SOLO.
- Sick day rules – D&V stop Loop, MRA, SGLT2, ACE and resume once symptoms resolve.

Case Study One

78yo male with mild LVSD and AF.

Meds: Bisoprolol 1.25mg od, Ramipril 1.25mg od,
Apixaban 2.5mg bd, Frusemide 20mg od.

Vital Signs: HR 75 irregular, BP 145/78 no deficit on
standing, eGFR 72.

Oedema has improved but remains in ankles

Chest clear

PLAN: ?

PLAN:

Patient is in Atrial Fibrillation, so HR is stable and ok at this level.

BP remains elevated consider increasing Ramipril

Consider increasing Loop for ankle oedema after next review if oedema remains.

Monitor bloods and BP 2 weeks post to assess renal function and effect of change.

If responds well to therapy continue to increase ACE until optimised as per maximum dose or patient tolerance.

Case Study Two

64 yo female POST STEMI – mild LVSD, waiting 3-month post MI ECHO to assess LV for stunning.

Meds: Bisoprolol 1.25mg od, Ramipril 1.25mg od, Eplerenone 12.5mg od, Atorvastatin 80mg on, Aspirin 75mg od, Ticagrelor 90mg bd.

Vital signs: HR 64 regular, BP 128/78 no deficit on standing.

Mild oedema to sock line continues.

Bloods Na 138, K 3.4, Creatinine 78, Urea 6.0, eGFR >90.

PLAN?

PLAN

- In view of oedema and low potassium increase Eplerenone to 25mg od if able or ask GP to prescribe.
- Review bloods, BP and oedema level 2 weeks post increase.
- If oedema remains and potassium in normal range, consider then adding in low dose loop diuretic.

Case Study Three

- 88 yo male
- Mild LVSD, COPD, T2DM, HTN
- Meds: Bisoprolol 7.5mg od, Ramipril 5mg BD, Fostair, Salbutamol, Carbocysteine, Metformin 500mg bd, Atorvastatin 40mg on.
- Vital Signs: 132/74, HR 49 Reg,
- Patient reports lethargy and sleepy. Increased cough, Nil oedema noted.
- PLAN: ?

PLAN

- Check manual pulse for rate and rhythm
- 12 Lead ECG as soon as possible
- Reduce Betablocker by 2.5mg
- Reassess in 1 week and if remains low reduce further unless patient has pacemaker in situ.
- If HR improved but cough remains, consider changing to Metoprolol or consider reducing ACE if dry cough.

When Specialist Input is required

- Following the initiation and titration of medication, some patients may still be experiencing symptoms of their heart failure. At this point a referral to the Heart Failure Specialist Nurse should be completed.
- A referral form and copy of echocardiogram result should be send to: rightcarebarnsleyintegratedspa@swyt.nhs.uk
- A copy of the referral form can be found by clicking the link below and scrolling to key documents. You will also be able to access further information about the service.
- [Heart Failure Specialist Nurse Service \(barnsleyccg.nhs.uk\)](http://barnsleyccg.nhs.uk)



THANK
YOU

ANY QUESTIONS ?



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