Managing of Heart Failure: detection & diagnosis

Patient presents with Breathlessness

Take a history
Key Symptoms:
- SOB on exertion
- Orthopnoea
- Nocturia
- PND

Do an examination
Key Signs:
- Tachycardia
- High BP
- Basal crepitations
- Gallop Rhythm at apex

Consider
-LVSD
-Pulmonary hypertension
-Acute renal failure

Investigation
FBC, U&Es, LFTs, Hba1c, Lipids, TFT, ECG ,*NT-ProBNP & Chest X-ray

ProBNP > 2001pg/ml 2 week **Urgent** echo referral

ProBNP 400–2000pg/ml 6 week echo referral

* **No ProBNP** with Pre-existing IHD or AF

ProBNP <399 pg/ml

Consider alternative diagnosis

Echocardiography performed

HFpEF confirmed

- Review medication and stop or minimize fluid retaining medication
- Use diuretics to reduce symptoms.
- Blood pressure control is paramount

HFrEF confirmed

Initiate treatment and secondary prevention as per next pathway even if onward referral considered/underway

No LV dysfunction

If aetiology is possibly due to valve disease or tachydysrhthmia then refer for further assessment

Patient presents with peripheral oedema

Bilateral

Elevated JVP

No elevation of JVP

Unilateral

Impaired venous flow

Consider:
-Thrombosis
-Pelvic tumour

Normal venous flow

Consider:
-Lymphoedema
-Baker's cyst

Serum protein/albumin normal

Consider:
- Medication
- Severe hypothyroidism
- Angio-oedema
- Bilateral lymphoedema
- iatrogenic
- Premenstrual oedema

Serum protein/albumin low

Normal Urinary protein

Urinary protein high

Consider:
Nephrotic syndrome

LFTs normal

Consider:
-Cirrhosis
-Budd Chiari syndrome

LFTs abnormal

Consider:
-Protein losing enteropathy
-severe malnutrition

Changing Terminology

HFrEF
Heart Failure due to **LVSD** is now called
Heart Failure with reduced Ejection Fraction

HFpEF
Heart Failure due to **LVDD** is now
Heart Failure with preserved Ejection Fraction

****Differential diagnosis of breathlessness**

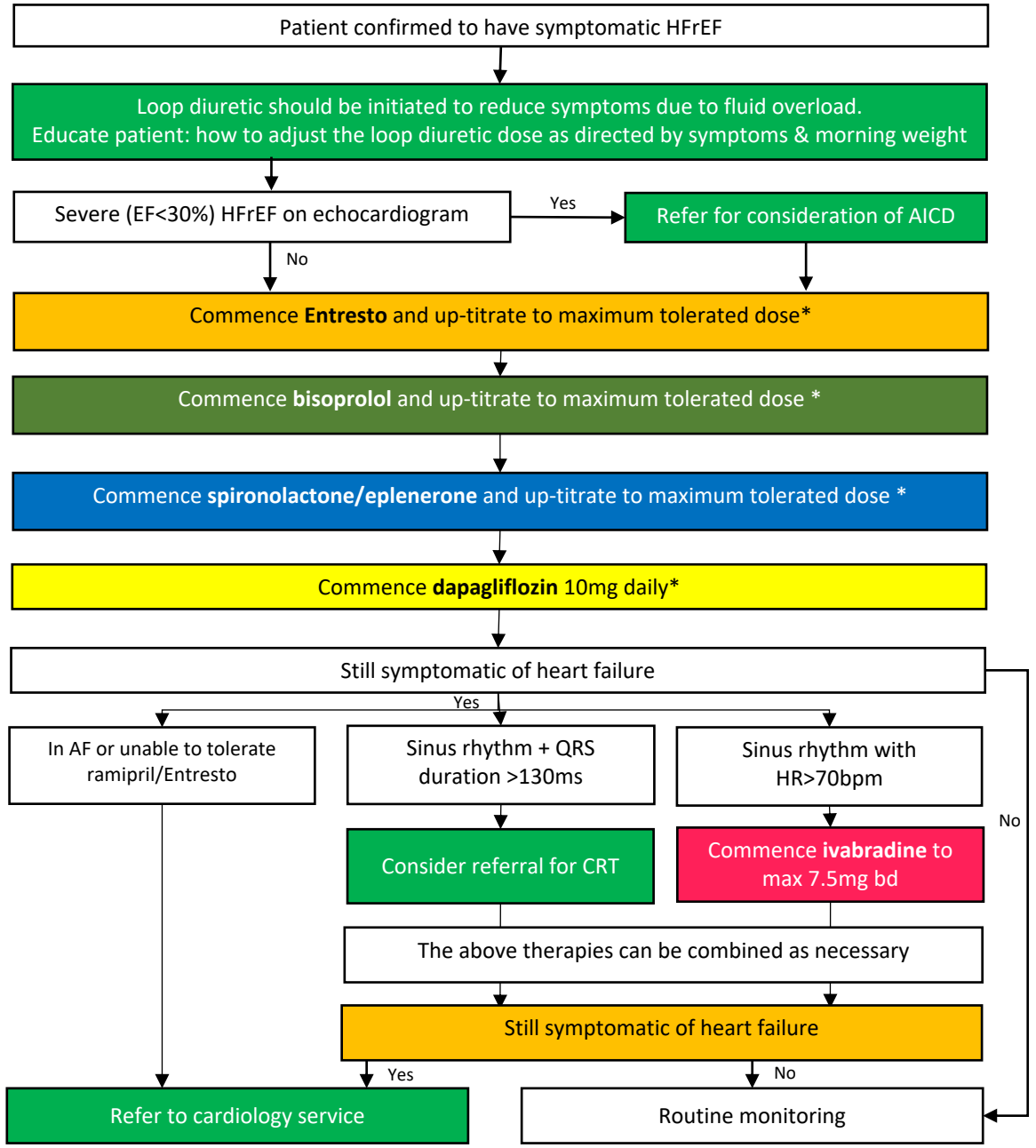
- Anaemia
- Anxiety with hyperventilation
- Asthma
- COPD
- Coronary disease (usually with chest pain)
- Deconditioning
- Dysrhythmia
- Fibrotic lung disease
- Gastro-oesophageal reflux
- Heart failure
- Metabolic dysfunction (e.g. acute renal failure)
- Neoplasm
- Pericardial effusion or restriction
- Pleural effusion
- Primary pulmonary hypertension
- Pulmonary embolism (acute or chronic)
- Restrictive lung disease
- Valvular heart disease

A normal ECG and Low BNP precludes HFrEF or HFpEF as the cause of breathlessness

There may be symptoms and signs of heart failure syndrome however the cause will not be due to pump failure

Westcliffe Cardiology Service April 2020

Heart Failure due to Reduced Ejection Fraction (HFrEF): management



***Initiating Spironolactone**

Continue treatment and monitor U&Es at:
2w→4w→8w→12w→6m→9m→12m
Thereafter 6 monthly U&E

Spironolactone should be stopped if Cr >200umol Or if increase >50% from baseline or if the potassium is >5.5mmol

Medication Advice

Entresto

If transferring to Entresto from ACEI or AEB then a 36hr washout period is required

If issues with ACEI or ARB such as hypotension, allergy, renal decline or angioneurotic oedema then Entresto should NOT be started; seek advice

Bisoprolol

Issues with hypotension, fatigue or sensitivity: replace bisoprolol with ivabradine and up titrate to 7.5mg bd determined by heart rate.

Ivabradine cannot be used in AF

Spironolactone

Issues with breast development or lactation: switch to eplenerone and up titrate in the same manner.

This change will not resolve issues with elevated serum potassium or renal decline

Dapagliflozin

In those with Heart Failure with Reduced Ejection Fraction (HFrEF) then dapagliflozin can be used even it there is no evidence of T2DM

All those in AF with HFrEF should be offered anticoagulation as this is a very powerful stroke risk feature of CHA_2DS_2VASc

*See HFrEF Medicine Management pathway

New York Heart Association symptom grading

- NHYA I - No symptoms
- NYHA II - Mild symptoms (e.g. walking)
- NYHA III - Marked limitation
- NYHA IV - Severe limitation (e.g. at rest)

Reasons for early referral to cardiology team

- You feel unsure about how to proceed
- Uncertain aetiology of HFrEF
- Issues with symptom management
- <55yrs where transplant maybe considered
- HFrEF due to cardiomyopathy
- HFrEF caused by AF
- Hypotension due to pump failure or iatrogenic
- Resting bradycardia
- Complex comorbidities, particular ≥ CKD3
- Complex emotional or social issues

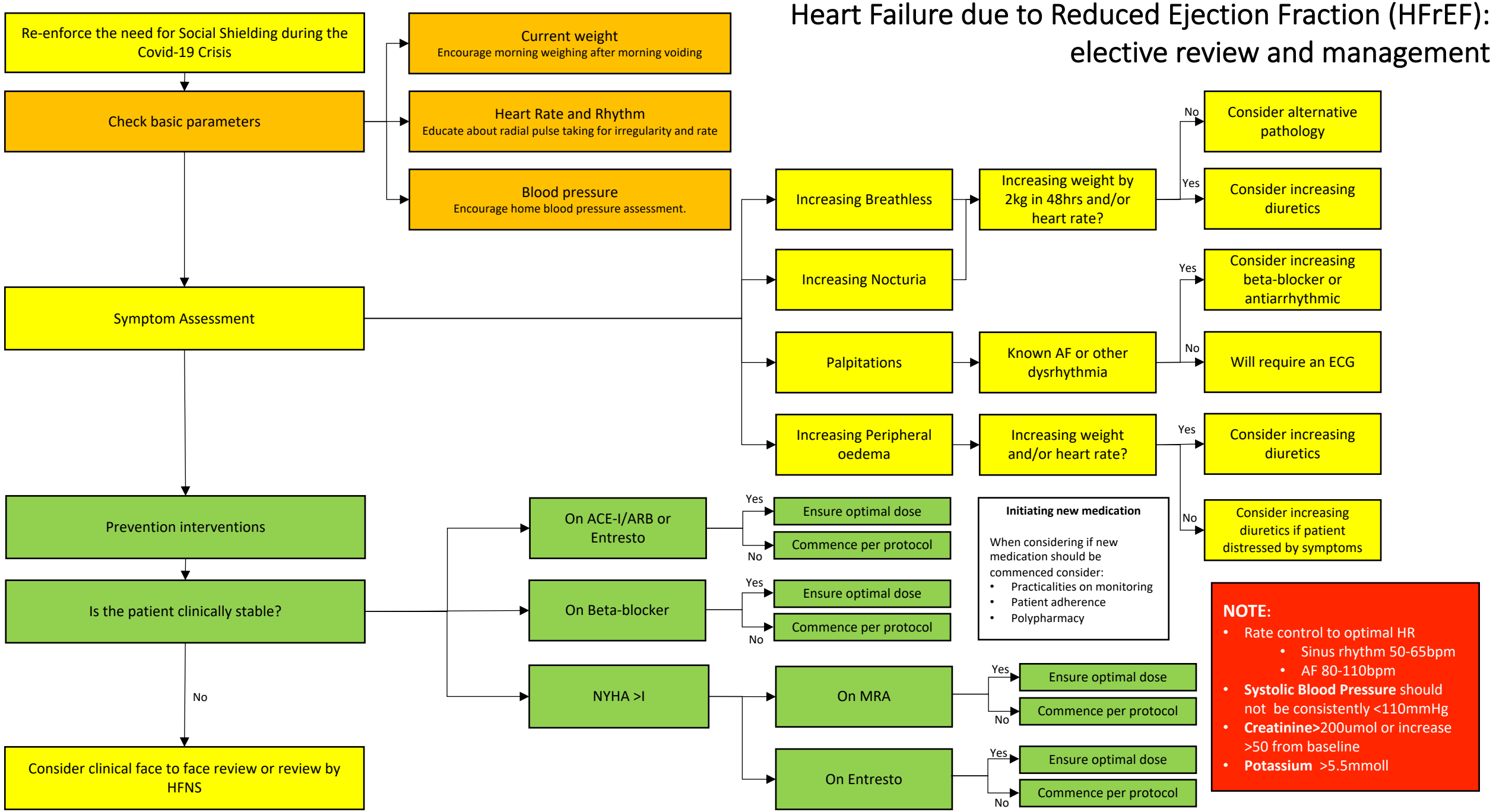
All those with HFrEF should be offered:

- **Entresto**
- **Bisoprolol +/or Ivabradine** to optimize HR
  - Sinus rhythm 50-65bpm
  - AF 80-110bpm
- **Spironolactone/Eplenerone 50mg**
- **Dapagliflozin 10mg daily**

Systolic Blood Pressure should not be consistently <110mmHg
Creatinine>200umol or if increase >50% from baseline
Potassium >5.5mmoll

Westcliffe Cardiology Service June 2020

Heart Failure due to Reduced Ejection Fraction (HFrEF): elective review and management



Westcliffe Cardiology Service April 2020

Sequence of HFrEF Medicine Management

Initiate **Entresto**

*Initiate **Entresto** 24mg/26mg bd

*Check U&Es & BP at 3 weeks

If BP &U&Es acceptable increase **Entresto** to 49mg/51mg bd

*Check BP at 3 weeks

If BP & U&Es acceptable increase **Entresto** to 97mg/103mg bd

*Check U&Es & BP at 3 weeks

*Take advice about initiation or dose increase if:

- Systolic Blood Pressure <110mmHg or symptoms of hypotension
- Serum potassium ≥ 5.5mmol/l
- Cr >200umol or if increase >50% from baseline
- eGFR ≤30

Initiate **bisoprolol**

Initiate **bisoprolol** 1.25mg od

Check HR, BP, side effects at 2-4 weeks. If HR>50bpm & systolic BP >100mmhg

Increase **bisoprolol** 2.5mg od

Check HR, BP, side effects at 2-4 weeks. If HR>50bpm & systolic BP >100mmhg

Increase **bisoprolol** 5mg od

Check HR, BP, side effects at 2-4 weeks. If HR>50bpm & systolic BP >100mmhg

Increase **bisoprolol** 10mg od

Check HR, BP, side effects at 2-4 weeks. If HR>50bpm & systolic BP >100mmhg

Initiate **spironolactone**

If Cr <200 µmol, K<5.0 mmol
Initiate **spironolactone** at 25mg (12.5mg if frail)

Check U&Es & BP at 2 weeks

If Cr <200 µmol, K<5.5 mmol
Increase **spironolactone** to 50mg (25mg if frail)

- Cr <200umol or NO increase >50% from baseline
- K <5.5mmol
- No diarrhoea / vomiting

Continue treatment and monitor U&Es at:
2w→4w→8w→12w→6m→9m→12m
Thereafter 6 monthly U&E

Initiate **dapagliflozin**

If eGFR ≥30, not T1DM or previous DKA
Initiate **dapagliflozin** 10mg

Check U&Es & BP at 4 weeks

If eGFR falls to ≤30 then repeat after 2 weeks and if on two consecutive remains ≤30 then discontinue

Dapagliflozin in those with T2DM
In those with concurrent T2DM, if the eGFR falls below 45ml/min there may be a need to adjust other oral hyperglycaemic agents or insulin. It may be appropriate to discuss with the Diabetes Team

ACUTE USE OF DIURETICS FOR EXACERBATIONS

above
dry weight sustained over 2 days) +/- increasing by oedema +/-

Increase **furosemide** by 40mg (or **bumetanide** by 1mg)

Maintain dose change for 3 days

Check with patient, if:

- Return to dry weight then return to previous dose
- No change maintain for further 3 days
- On going deterioration then consider alternative intervention

If patient deteriorate again within 2-3 weeks, then consider making the dose increase in loop diuretic permanent

Ivabradine

If despite up titration of bisoprolol to 10mg (or maximum tolerated dose) the resting HR is not at target of 50-65bpm then consider ivabradine 2.5mg and up titrate as tolerated to 7.5mg
If issues with hypotension, fatigue or sensitivity due to bisoprolol then replace with ivabradine as above.

With thanks to Dr Ramesh Mehay for formatting and support