Document Control

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CONTENTS

1. Purpose

1.1. The purpose of this document is to guide the diagnosis and clinical management of Adults admitted with acute or decompensated heart failure.

1.2. The guideline applies to the In-Patient Heart Failure Team and those clinicians / individuals managing patients admitted with acute decompensated heart failure.

1.3. The guideline is not intended to replace the NICE guidance for Acute Heart Failure CG187 (2014), but is a summary of the main points with additional information for local implementation.

1.4. Implementation of this policy:

- Demonstrates that the care quality standard is met:
  - All hospitals admitting people with suspected acute heart failure should provide a specialist heart failure team that is based on a cardiology ward and provides outreach services.
- And will ensure that:
  - People being admitted to hospital with suspected acute heart failure have early and continuing input (where appropriate) from a dedicated specialist heart failure team.
  - Appropriate use of diagnostics / investigations to ensure that diagnosis is confirmed and patients have access to most appropriate treatments, while avoiding unnecessary duplication of tests i.e. echocardiography.
  - Appropriate patients admitted with a primary diagnosis of heart failure due to reduced ejection fraction (HFrEF) are referred to the Community Heart Failure Team for support with ongoing management and arrangements for follow up
  - In-patient teams have access to advice and support for patients who have signs or symptoms of heart failure, but have preserved ejection fraction (HFpEF) on echocardiogram
  - Appropriate patients admitted with a primary diagnosis of HFrEF receive appropriate doses of disease modifying medications
  - Appropriate patients will be reviewed regularly by the heart failure team, who will liaise closely with the consultant cardiologist of the week (COW), to ensure patient's condition is managed proactively.
  - Patients will be sign-posted to the most appropriate place of care (cardiology ward) and where this is not possible continue to be monitored by the heart failure team.
  - Appropriate patients receive information on the nature of heart failure, medication regimes, adverse reactions, symptoms of worsening heart failure, what to do if these symptoms occur. All patients suitable for follow up, within the integrated heart failure team, will be given a copy of the heart failure teams contact details for support following discharge to usual place of care.

- Comprehensive discharge summaries will detail the care provided, reason behind any treatment adjustments and plans / proposal for on-going care are written.
- Where appropriate, early and sensitive discussions regarding treatment escalation and end of life care will be initiated and documented and, where suitable, timely communication with palliative care and community teams.
- The integrated heart failure team will provide a smooth transition of care from hospital to the community, with appropriate patients receiving early and directed follow up within the HOT and heart function clinics.

- Exclusion criteria
  - Pregnant ladies / early post partum period / breastfeeding
  - Advanced dementia

2. Definitions

2.1. HFrEF – treated with a range of DMT and device options

2.2. HFpEF – treatment limited to comorbidity management & symptom control. Withdrawal of medications that can contribute to oedema.

2.3. HFmrEF – Heart Failure with Median Range Ejection Fraction

2.4. ADHF – Acute Decompensated Heart Failure. New of worsening presentation of heart failure

2.5. CoW – Cardiologist of the Week

2.6. ACP – Advanced Clinical Practitioner

2.7. HFNS – Heart Failure Nurse Specialist

2.8. RAAS blocker – Renin Angiotensin Aldosterone System Blocker – collective term for Angiotensin Converting Enzyme Inhibitors, Angiotensin Receptor Blockers & Mineralocorticoid Receptor Antagonists

2.9. OMT – Optimal Medical Therapy

2.10. WRF – Worsening Renal Function

3. Responsibilities

Role of Consultant Cardiologist

3.1. The Consultant Cardiologist is responsible for:

- Providing clinical support to the ACP & HFNS for the patients being managed within the service
- Maintaining clinical responsibility for patients managed by the Heart Failure Team
- Providing regular MDT opportunities to discuss clinical cases and support management decisions for patients admitted with a diagnosis of heart failure
- Identifying cover within the cardiology medical team during ACP absence to ensure continuity of service.

Role of Advanced Clinical Practitioner

3.2. The Lead ACP for heart Failure is responsible for:

- Ensuring the distribution of this policy to medical teams and its implementation with in the heart failure service.
- Ensuring that the service is delivered adhering to local and national guidelines, ensuring these are regularly reviewed and updated in accordance with the evidence base.
- Providing support to clinical teams to aid diagnosis of heart failure and appropriate clinical management.
- Providing direct clinical management of patients admitted with HFrEF and ensuring smooth transition of care from acute hospital to community follow up.
- Providing support to teams managing patients with diagnosis of HFpEF and using clinical acumen, and awareness of service capacity / demand, to support early, but time limited, follow-up for those patients at high risk of readmission.
- Where appropriate, using non-medical prescribing knowledge and skills to manage patients admitted with heart failure and updating individual prescribing competencies
- Attending at least 2 Non Medical Prescribing forums annually
- Ensuring individual clinical competency to manage patients admitted with acute decompensating heart failure and where uncertainty exists, responsible for seeking cardiologist opinion
- Ensuring regular attendance at Tuesday cardiology MDT meetings.
- Ensuring regular attendance at speciality specific conferences, study days and training opportunities to maintain up to date knowledge and competence
- Providing clinical support in the on-going professional education and development to nurse specialists working within the heart failure nursing team
- Providing weekly ACP led MDT meetings for cardiac support teams.
- Ensuring that all staff within the heart failure nurse service, providing in-reach support for patients admitted with heart failure, work within their field of competency. All appropriate competencies are discussed at appraisal and evaluated and documented accordingly.

- Providing training / teaching opportunities for in-patient and community teams who are caring for patients living with heart failure.

Role of clinical nurse specialist

3.3. The CNS for Heart Failure is responsible for:

- Working in line with the NMC code of professional standards of practice and behaviour, being responsible and accountable for their sphere of clinical skills
- Ensuring that they work within current legislation and the organisation's Medicine Policy and Formularies.
- Following their professional codes of practice and remaining accountable for prescribing practice at all times.
- Attending at least 2 Non Medical Prescribing forums annually
- Identifying learning needs, meeting their Continuing Professional Development requirements, and ensuring that they are up to date on the conditions for which they prescribe.
- Only practicing within their competence.
- Regularly undertaking audit of their prescribing.
- Acting as an expert resource to others (including patients and other professionals).
- Following this guideline and the Medication Guideline for Chronic Heart Failure as a guide to prescribing, but may prescribe outside of this policy, while clearly documenting their decision making process.

Role of the cardiac support nurse

3.4. The Cardiac Support Nurse is responsible for:

- Collection & submission of data required for the National Audit for In-patient Heart Failure.
- To provide information and advice to patients admitted with a diagnosis of heart failure, including diagnosis, self-monitoring and follow up plans.

4. Guideline for the investigation and management of patients admitted with suspected or decompensated heart failure.

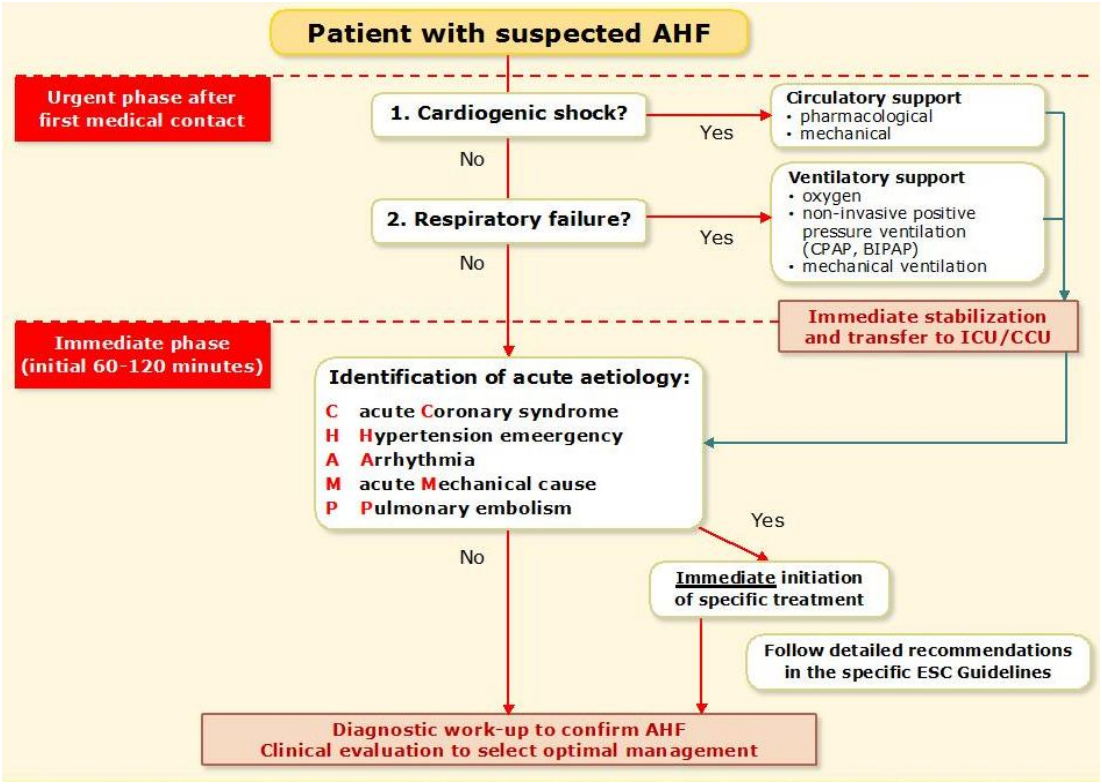
Initial Management of a patient with Acute Decompensated Heart Failure (ESC 2017)

4.1. It is not the intention of this document to offer advice on the immediate management of the clinically deteriorating patient, since this should be addressed in the usual manner utilising ALS algorithms & protocols. However:

4.1.1. The diagnostic work up of a patient presenting with acute heart failure should occur in a timely manner in order to initiate appropriate management. Coexisting life-threatening clinical conditions and / or precipitants that require urgent treatment / correction need to be identified and managed accordingly.

4.1.2. Diagnosis should be based upon a thorough history assessing symptoms, prior CV history and potential cardiac and non-cardiac precipitants, assessment of signs and symptoms of congestion and / or hypoperfusion and relevant investigations such as ECG, laboratory assessments and echocardiography.

4.1.3. The European Society of Cardiology (ESC) recommendations for initial management of patients presenting with suspected acute Heart Failure are represented in the following algorithm (see Algorithm 1)



Algorithm 1 - Initial Management of a patient with Acute Heart Failure

4.2. NICE (2018) recommend - At an early stage, the specialist should have a discussion with a centre providing mechanical circulatory support about:

- ⇨ People with potentially reversible severe acute heart failure or
- ⇨ People who are potential candidates for transplantation.

- If not already directly involved, suitable patients should be referred to CoW for consideration of advanced management.

Confirmation of diagnosis

4.3. During the initial management and / or once the patients clinical condition has been stabilised, a diagnostic work up to confirm acute decompensated heart failure (ADHF) should be undertaken.

4.4. A CXR is of limited use in the diagnostic work up of patients with suspected heart failure, but is useful to rule out other causes of patient's signs and symptoms and may show evidence of pulmonary venous congestion / interstitial oedema.

4.5. An abnormal ECG increases the likelihood of a diagnosis of heart failure and may provide indications for therapy e.g. anticoagulation for AF, pacing for heart block and CRT for widened QRS.

4.6. The blood test NTproBNP helps to establish an initial working diagnosis and is a rule out test. Patients with a BNP levels < 400pg/mL are unlikely to have important cardiac dysfunction and do not require for imaging of echocardiography. There are numerous cardiac and non-cardiac causes of an elevated NTproBNP including AF and renal dysfunction, and for this reason is used to rule out HF but not establish a diagnosis.

4.7. All patients with suspected Heart Failure with an elevated NTproBNP and signs of heart failure should have an echocardiogram during their in-patient stay (NICE 2018)

4.8. A repeat Echocardiogram may be considered for patients with known Heart Failure, and an acute decompensation, where aetiology is not fully understood or structural cardiac cause for decompensation is considered e.g. structural valve disease, post MI

4.9. A repeat Echocardiogram may not be necessary for all patients with known heart failure, and an acute decompensation, where previous Echocardiogram and subsequent tests have confirmed underlying aetiology. If unsure, discuss with Cardiologist / Heart Failure team.

4.10. An echocardiogram is the diagnostic test of choice in patients with suspected heart failure and can provide immediate information on ventricular and valve function, chamber volume, muscle wall thickness and regional wall motion abnormalities, as well as pulmonary hypertension. This information is vital for establishing the diagnosis and ensuring patient has access to most suitable and potentially life-saving treatment / intervention.

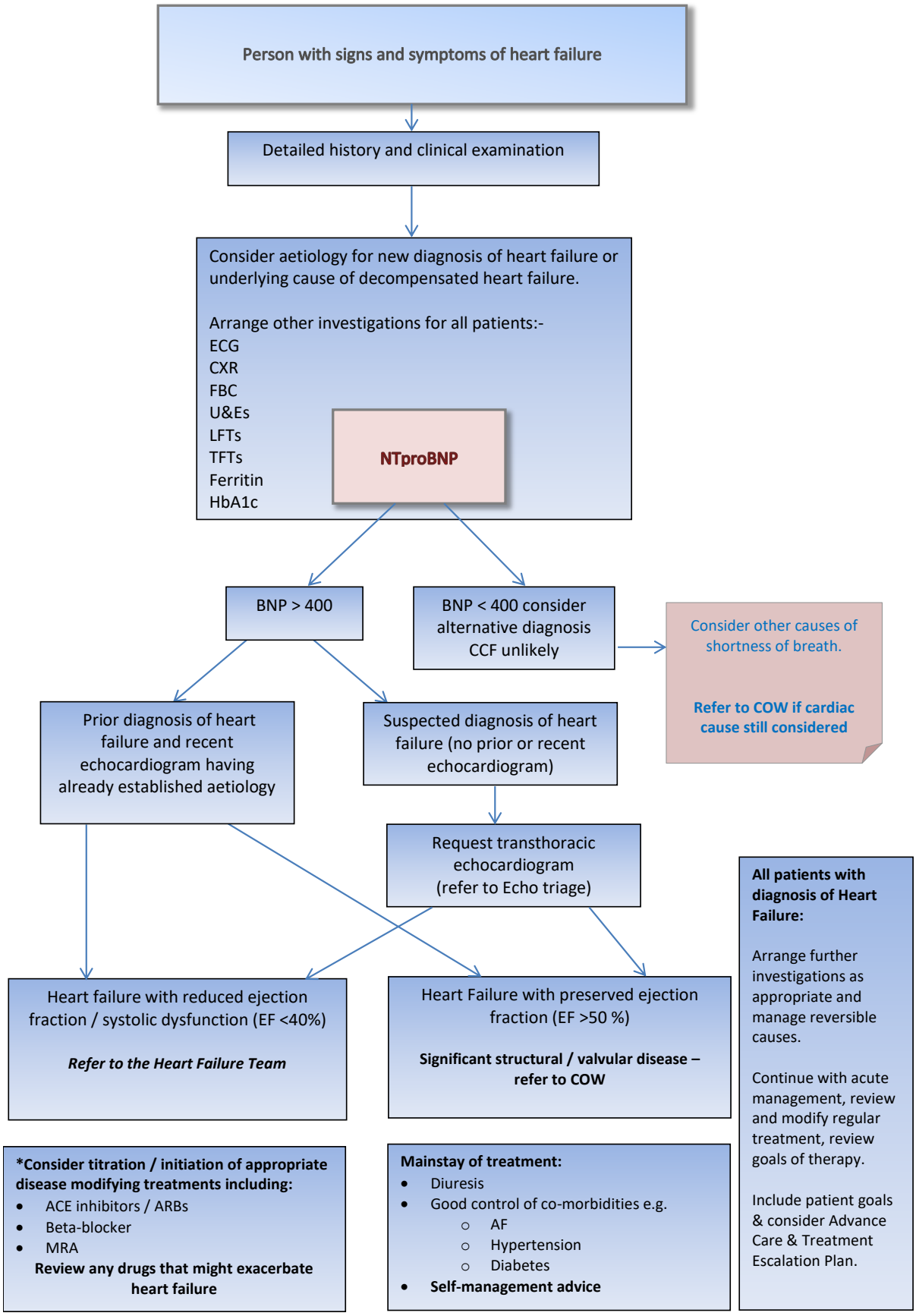
4.10.1. HFrEF – reduced left ventricular systolic function with an ejection fraction < 40%

4.10.2. HFpEF – ESC definition of HFpEF requires the following:

- Symptoms and signs of heart failure
- An elevated BNP
- EF > 50%
- Objective evidence of other cardiac functional abnormality and structural alterations underlying HF e.g.
  - LVH
  - Left atrial enlargement
  - Evidence of diastolic dysfunction

4.10.3. HFmrEF - EF 40 – 50% - Grey area – d/w cardiologist if cardiac diagnosis still considered.

4.11. The following algorithm is intended to guide confirmation of diagnosis and on-going management:



Management of Acute Decompensating Heart Failure (ADHF)

WORSENING RENAL FUNCTION:

Please note, increased systemic venous pressure can cause a decline in eGFR by increasing renal interstitial pressure.

Conversely, treating congestion can reduce renal interstitial pressure and lead to an increase in eGFR.

Thus, decongestion by diuretics is a priority in patients presenting with ADHF, despite worsening renal function.

Don't hesitate to diurese the overloaded patient, but if kidneys a concern consider reducing other medications that might allow kidneys to recover (Please refer to Figures 1 & 2)

Close monitoring and adjustment is crucial, with the objective to safely render the patient clinically euvolaemic.

If unsure, refer to HF nurse team.

SIGNS OF VOLUME DEPLETION:

- Dizziness
- Constipation
- Weight loss >1kg/day
- Reduced skin turgor
- Disproportionate rise in urea
- Fatigue
- Thirst
- Oliguria

Signs of sodium and water retention:

- Pitting oedema e.g. ankle, leg and sacral area etc
- Pulmonary oedema e.g. chest x-ray or Crackles
- Raised JVP (jugular venous pressure)
- Weight gain
- Abdominal distension / reduced appetite

IV Furosemide:

- At least same dose as that which the patient was taking prior to admission (unless concerns regarding treatment adherence)
- Severe ADHF consider higher dose of diuretic, typically 1.5 – 2 x usual dose.
- Increase and titrate according to signs and symptoms

Thiazide:

- If congestion persists, consider addition of oral thiazide (e.g. Bendroflumethiazide 2.5mg or if EGFR < 30ml/min\ Metolazone 2.5mg) – **refer to Heart Failure Team**.
- Initial dose of 2.5mg once only, increasing to a maximum 5mg once daily dose

Mineralocorticoid Receptor Antagonist:

- Consider adding Spironolactone 12.5 – 25mg daily, for those patients with a reduced ejection fraction, up to 50mg daily (NYHA class III – IV).
- Can be a useful adjunct to keep in the presence of potassium depletion.
- Eplerenone can be used as a second line if adverse effects with spironolactone e.g. gynaecomastia

Ward monitoring for all patients with heart failure:

- Daily weight for all patients:
  - Aiming for weight loss of 0.5 – 1kg per day until dry weight achieved.
- Daily U&Es whilst on IV diuretics or newly prescribed thiazide / MRA
- All patients advised to adhere to a daily fluid intake < 2 litres
- In severe congestion, or in the presence of Hyponatraemia, consider fluid restriction to < 1.5 litres daily
- Record input / output fluid balance

For more detailed trouble-shooting, please refer to Medication

Patient established on RAAS blocker presenting unwell with AKI/WRF

Primary presenting problem

Fluid overload
(ensure is decompensated heart failure)

Hypotension
(as compared with

Infection
Treat with antibiotics as per

REDUCING DOSES OF DIURETIC THERAPY

- This should be undertaken cautiously and dose reduced if there are signs of volume depletion and hypoperfusion (e.g. weight loss from dry weight >1kg, urea increase > 25 %, and / or symptoms of postural dizziness / feeling dry).
- If excessive weight loss, IV diuretic dose should be reduced to achieve a daily weight loss of no more than 1 kg.
- IV diuretics may be switched to oral as signs of congestion reduce; patients continue to lose weight and / or

Management of Heart Failure due to Reduced Ejection Fraction

TREATING HYPOKALAEMIA:

- Consider suitability for adding ACE / ARB (HFrEF) and / or HFpEF with raised blood pressure
- Consider adding MRA if clinically indicated.
- Refer to Medication Guidelines for Chronic Heart Failure – Potassium Supplementation.
- Monitor serum K closely and aim for a 'Sweet Spot' of serum K 4.5mmol/l.
- If requiring K supplement prior to discharge, consider continuation of treatment post-discharge and arrange blood test monitoring within 1 week to guide dosing.

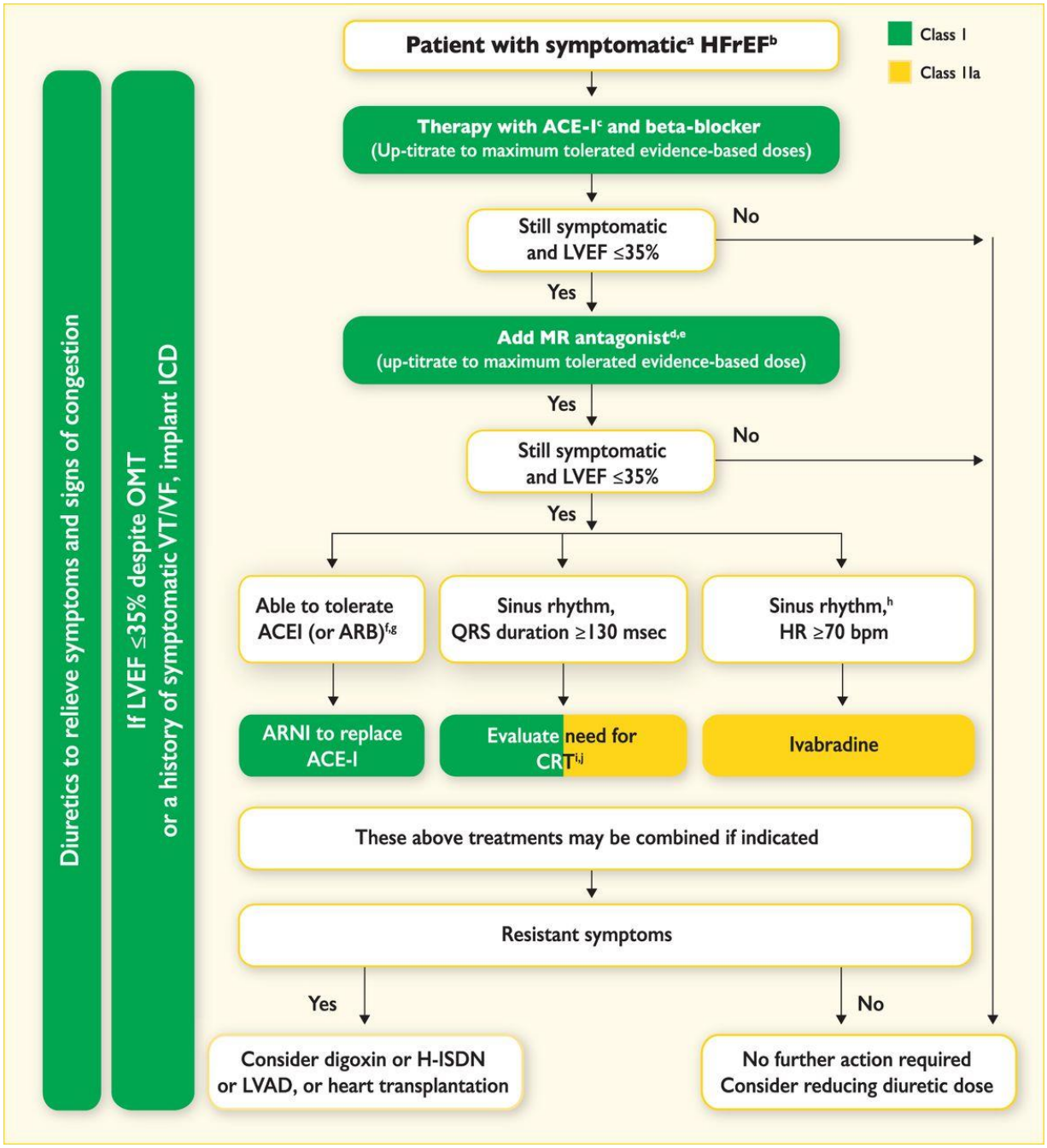
RENAL TEAM INPUT:

- Please consider seeking Nephrology team advice:
  - For patients known to renal team
  - If rapid progression of CKD without improvement after modification of treatment(see figure 1 & 2)
  - If considered possible candidate for renal replacement therapy
- Nephrology Team can be contacted via switchboard either in-house or at Royal Devon & Exeter Hospital

PATIENT ADVICE:

- All patients should be informed of the consequences of diuresis and offered an opportunity to consider their coping strategies.
- All patients should be advised of the reason for weight monitoring (to guide and monitor effectiveness of treatment and alert the individual to worsening signs of congestion) and encouraged to continue recording of daily weights once discharged home. Consider sharing Pumping Marvellous RAG 'Symptom Checker' fold out wallet card.
- Offer written information, including local symptom advice leaflets, pumping marvellous and BHF resources.

4.12. If not already seen by team – please refer to Heart Failure Nurse Team



4.13. Where suitable and / or not contraindicated, aim to discharge on 3 key disease modifying treatments of ACE inhibitor, Beta-antagonist and MRA. These medications can make patients feel better, reduce hospital readmissions and improve their survival.

4.13.1. For initiation and titration of ACE Inhibitors, Beta-blockers and MRA including troubleshooting, please refer to Medication Guidelines for the management of Chronic Heart Failure

4.13.2. In view of closer monitoring of patient haemodynamics and renal function, during in-patient stay, please note dosage adjustment may occur more quickly, than would be appropriate in the out-patient / community setting.

4.13.3. If unsure, please seek advice of Heart Failure Nurse Team.

4.14. Specialist initiation only – patients admitted on stable moderate doses of ACE inhibitor, may be considered for alternative treatment of Sacubitril / Valsartan.

Advance care / treatment escalation planning

4.15. Mortality in those patients admitted with heart failure remains high, with a mortality of 9.4%. In addition to this, overall mortality at one year following hospital discharge is 23%. National in-patient HF audit 2017 /2018

4.16. While it is recognised good in-patient care, with support from, and early follow-up with, specialist teams can help to reduce mortality, consideration to when a patient may be nearing the end of their life is vital to ensure access to good quality end of life and palliative / supportive care.

4.17. An admission to hospital provides time to identify patients with a worse prognosis and introduce palliative / supportive measures.

4.18. A Treatment Escalation Plan (TEP) should be completed during initial management and reviewed regularly during the patients hospital stay.

4.19. TEP decisions should take into account patient's wishes, 'what is important to them', with the clinician giving due consideration to the benefits of escalation, the potential outcome from optimising heart failure treatment and suitability of referral for advanced heart failure therapies, including pacemaker device therapy, LVADs, transplant etc.

4.20. Indications that patient may be nearing the end of their life might include:

- 3 or more non-elective admissions within last 6 months
- NYHA class III – IV
- Refractory symptoms despite optimal medical therapy
- Declining renal function
- Resistant hyponatraemia
- Hypoalbuminaemia
- Starting to reduce HF therapies

and might prompt a discussion with the patient +/- family regarding their understanding of their situation and treatment plans and the introduction of palliative / supportive measures.

4.21. If unsure whether ceiling of treatment has been reached, consider discussion with Cardiologist / Heart Failure team.

4.22. Where potential outcomes are poor and ceiling of treatment has been reached, this should be discussed honestly and sensitively with patient / family.

4.23. Advance care planning conversations, including place of death and DNACPR discussions should be put in place as appropriate and documented accordingly.

4.24. Implantable cardioverter defibrillator (ICD) deactivation should be discussed with the patient and their wishes recorded. Please refer to the ICD deactivation policy and arrange deactivation where this is the patients wish.

4.25. Where indicated, consider liaising with or referring to palliative care team e.g. support / advice required to treat refractory and / or complex symptoms.

Discharge planning

4.26. Discharge planning will commence once the patient is stabilised and will include discussions with the patient and, where required, the patient's family / carer. The HF team will support coordination, working with the wider in-patient MDT to support safe and effective discharge.

4.27. This period during a patients hospital stay is an ideal time to provide education and will include information regarding their heart failure management, self-monitoring, the role of the Heart Failure team and when to call for help.

4.28. Education will be supplemented with written validated information, including Pumping Marvellous' 'Symptom Checker' and progress report booklets.

4.29. Heart Failure team will consider suitability for referral to Cardiac Rehabilitation and review during follow up, referring as appropriate.

4.30. Treatment plans and timely follow up allow medications to be optimised and any changes to the patient's condition acted upon quickly, avoiding unnecessary readmissions:

4.30.1. The provision of heart failure nurse follow up and monitoring will be determined by the heart failure nurse team, but will be available to all patients admitted with HFrEF.

4.30.2. Ideally, patients with HFpEF, who have experienced repeated admissions and / or are receiving combination of loop and thiazide diuretic, will have initial follow up within the HOT clinic.

4.30.3. The in-patient Heart Failure team will aim to manage a smooth transition of care from hospital to community heart failure team and / or primary care teams.

4.31. All patients will receive a care plan and discharge summary, which the Heart Failure team will support, with the aim of ensuring a comprehensive level of information is documented to assist teams to provide good follow up care. As a minimum requirement, the following will be documented within the discharge summary:

- Signs & Symptoms on discharge:
- NYHA class:
- Last examination:
  - BP
  - Pulse & rhythm
  - Weight
  - Weight loss since admission
- Most recent blood test results:
- Echo report:
- Education issues covered:
- Management & follow up plans:
- Reasons DMT not commenced / discontinued and advice regarding potential recommencement:

5. Monitoring Compliance with and the Effectiveness of the Guideline

Standards/ Key Performance Indicators

5.1. Key performance indicators comprise:

- Patients admitted with acute decompensated heart failure will be managed according to this policy, with access to advise and support from In-Patient Nurse Specialist Team
- Adherence to quality Standard (QS103) Acute Heart Failure
- Compliance with NCEPOD 2019 failure to Function recommendation checklist

Process for Implementation and Monitoring Compliance and Effectiveness

5.2. The policy will be implemented by the In-patient Heart Failure Nursing Team, following approval from the Cardiology Operational Group and Drugs and Therapeutic Committee

5.3. Monitoring of this policy will be the responsibility of the Lead ACP for Heart Failure:

- Data submitted to the national Heart Failure in-patient audit.
- Data will be collected and submitted by Cardiac Support Nurse
- Local analysis of the National Audit Report will be shared and reviewed with Cardiology Operational Group
- ACP will monitor activity of in-patient team and review prescribing decisions, from a random sample of case notes, once every 3 months?

6. References

- European Society for Cardiology (2016) Clinical Practice Guidelines – Acute & Chronic Heart Failure *EHJ (2016) 37 (27):2129-2200 - https://doi.org/10.1093/eurheartj/ehw128*
- NCEPOD (2018) Failure to Function - A review of the care received by patients who died in hospital following an admission with acute heart failure *https://www.ncepod.org.uk/AHF%20full%20report.pdf*
- NICE (2014) Clinical Guideline (CG187) Acute Heart Failure https://www.nice.org.uk/guidance/cg187
- BHF (2016) All Parliamentary Party Group (APPG) for Heart Disease - Focus on Heart Failure http://www.phpc.cam.ac.uk/pcu/files/2016/09/app g-on-heart-disease-focus-on-heart-failure-report.pdf

7. Associated Documentation

- ECHO Triage (see appendix 1)
- Medication guidelines for Chronic Heart Failure