StChristopher's
More than just a hospice

Continuous subcutaneous furosemide in the community setting: decision-making tool and prescribing guidance

Step 1

Eligible patients

- End stage heart failure patients who are unresponsive to high-dose oral diuretics with poor venous access
- End stage heart failure patients who wish to avoid hospital admission or attendance as day case and IV diuretics cannot be offered in the community
- End stage heart failure patients who cannot tolerate or may decline IV diuretic therapy
- End stage heart failure patients in the last days of life who require high-dose diuretics to manage symptoms
- Consider for use in end stage renal failure with fluid overload but discuss with renal team first – subcutaneous furosemide will not work for anuric patients.

Work through the decision flowchart on the next page.

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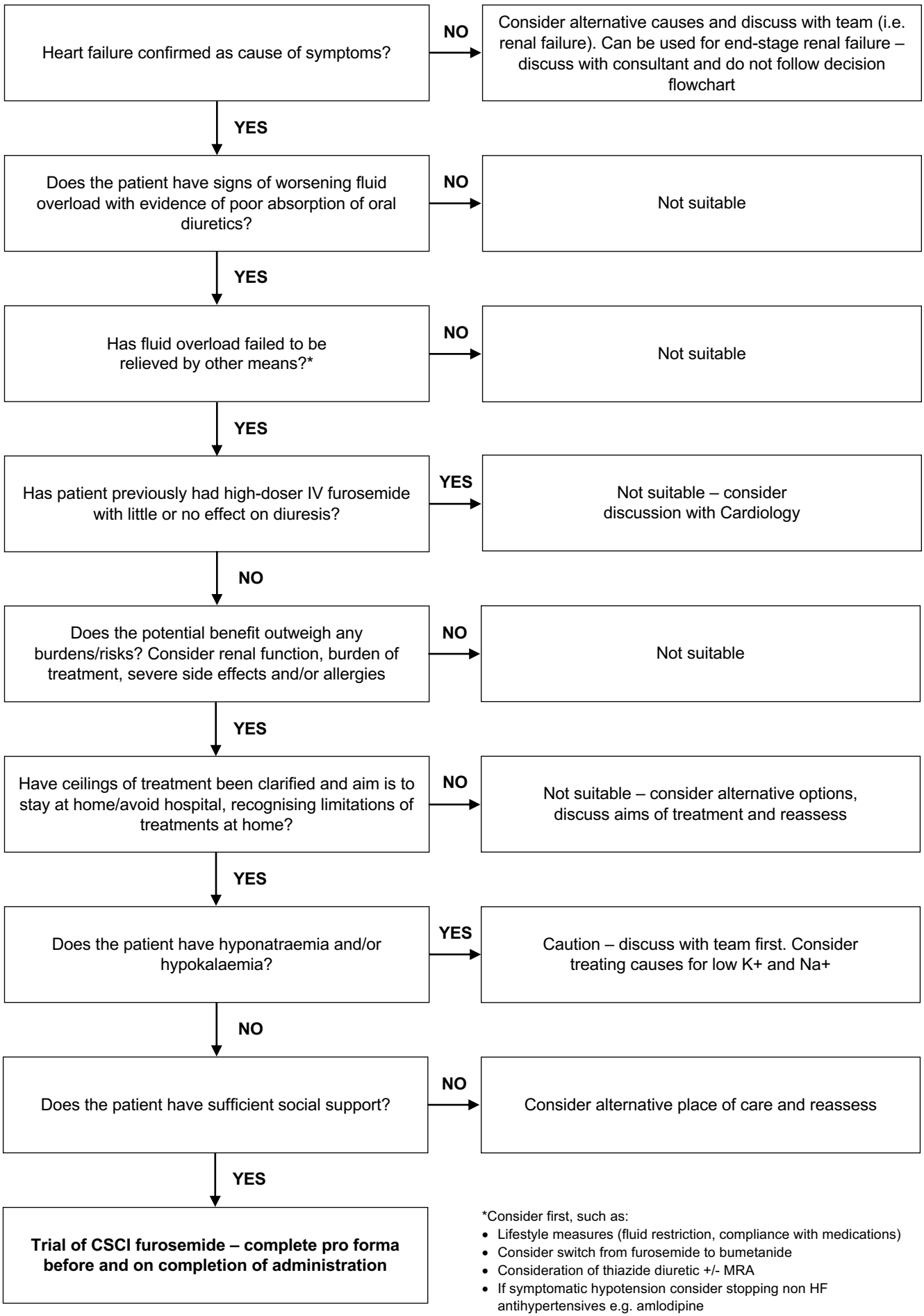
Decision flowchart



*Consider first, such as:

- Lifestyle measures (fluid restriction, compliance with medications)
- Consider switch from furosemide to bumetanide
- Consideration of thiazide diuretic +/- MRA
- If symptomatic hypotension consider stopping non HF antihypertensives e.g. amlodipine
- Consider temporary reduction or withdrawal of ACEi/ARB/SacVal/MRA if needed for hypotension- but discuss with cardiology first

Step 2

Prescribing and administration

- Use previous 24-hour dose of oral Furosemide (or equivalent if using Bumetanide) as the starting dose for continuous infusion i.e. 1:1 oral to SC ratio for Furosemide and titrate up/ down according to response and titrate up/ down according to response. 1mg Bumetanide is the equivalent to 40mg Furosemide
- STOP oral loop diuretics (Furosemide and Bumetanide) whilst on the infusion
- Furosemide should be diluted with normal saline or water for injection- or can be administered undiluted if not enough capacity to dilute. Maximum dose in 24 hours via McKinley T34 pump would be 230mg in a 30ml syringe, but check own local policy on syringe driver guidelines
- Please follow local procedures and guidelines about the use of syringe pumps
- Furosemide ampoules are supplied as 10mg/ml and are available in 2ml, 5ml or 25ml ampoules
- Check baseline BP on commencement of Furosemide syringe driver
- A district nurse referral should be completed for them to re-prime the pump and check BP at each syringe change and report any symptoms of concern such as site reactions and low BP
- GP should be notified as soon as possible and asked to URGENTLY prescribe Furosemide ampoules
- If starting close to a weekend please ensure we provide enough initial supply to cover
- Patient should be reviewed regularly to ensure effectiveness of regime but also to monitor for signs of over diuresis and that patient is tolerating therapy
- Renal function should be checked 3-7 days after commencing or as close to this as possible – this may be less relevant if administering for symptom control at the end of life.

Please complete the below pro forma prior to commencing treatment and on completion – ensure this is returned to the St Christopher's Community Team for the attention of the heart failure nurse.

Step 3

Pre-assessment check

Name	
Date of birth	
NHS no.	
Address and postcode	
Telephone	
GP/DN name/telephone	

Diagnosis	☐ HFpEF ☐ HFrEF ☐ RHF ☐ Valvular ☐ ESRF ☐ Unknown/Unsure		
AKPS/POI			
Signs and symptoms before CSCI use:			
Breathlessness	☐ Mild	☐ Moderate	☐ Severe
Oedema	☐ Mild (below knee)	☐ Moderate (above knee)	☐ Severe (trunk/sacral)
Fatigue	☐ Mild	☐ Moderate	☐ Severe
Chest crackles	☐ Basal	☐ Widespread	
Ascites	☐ Mild	☐ Moderate	☐ Severe
NYHA classification	☐ I ☐ II ☐ III ☐ IV		
Heart failure medications at start of treatment:			
Diuretics			
ACEi/ARB: i.e ramipril/ candesartan			
MRA: i.e pironolactone or eplerenone			
Beta blocker: i.e bisoprolol			
SGLT2i ie sacubitril valsartan			
Others			

Preferred place of care	☐ Home ☐ Hospice ☐ Hospital
Preferred place of death	☐ Home ☐ Hospice ☐ Hospital

Rationale for starting treatment (tick all that apply):
☐ Unable to take, or no longer responsive to, oral diuretics ☐ Ineffective control of symptoms and/or fluid overload ☐ Approaching end of life, at risk of breathlessness ☐ Not for transfer or wishing to avoid hospital ☐ Facilitate discharge from hospital

PO loop diuretic mg	CSCI Furosemide dose on commencement mg/24h
☐ Bumetanide ☐ Furosemide	
Decision to go ahead approved?	☐ Yes ☐ No
Discussed with (name and designation)	
Date of discussion	
Signature	

Date bloods checked				
Urea	Creatinine	eGFR	K	Na
Baseline BP / mmHg				
Previously known dry weight (if known) ☐ kg ☐ st				
Current starting weight ☐ kg ☐ st				

Step 4

CSCI Furosemide ongoing review: week one – any issues identified and actions taken

Day 1	
Day 2	
Day 3	
Day 4	
Day 5	
Day 6	
Day 7	

Subsequent bloods checked: day three and day seven if appropriate to do

Date bloods checked				
Urea	Creatinine	eGFR	K	Na
Date bloods checked				
Urea	Creatinine	eGFR	K	Na

Step 5

Post-assessment check

Date started		Date finished	
CSCI dose started	mg/24h	SCI dose finished	mg/24h
Starting weight	☐ kg ☐ st	Finishing weight	☐ kg ☐ st

Reason for finishing treatment:
☐ Achieved goal ☐ Pump burden ☐ Site reaction ☐ Hypotension ☐ Other

Signs and symptoms after CSCI use:			
Breathlessness	☐ Mild	☐ Moderate	☐ Severe
Oedema	☐ Mild (below knee)	☐ Moderate (above knee)	☐ Severe (trunk/sacral)
Fatigue	☐ Mild	☐ Moderate	☐ Severe
Chest crackles	☐ Basal	☐ Widespread	
Ascites	☐ Mild	☐ Moderate	☐ Severe

Clinical outcomes:	
☐ Improvement of symptoms	
☐ Side effects	
☐ Other issues	
☐ Avoided hospital admission	
☐ Achieved preferred PoD	☐ Yes ☐ No ☐ Not applicable

References

Guidelines for the administration of intravenous and subcutaneous diuretics for heart failure patients in the community setting, NHS North West Coast

Abbreviations

ACEi Ace inhibitor

ARB Angiotensin II receptor antagonists

MRA Mineralocorticoid receptor antagonists

Sac Val sacubitril valsartan

Ongoing review

Ongoing review if continuing with syringe driver after one week. If no improvement in symptoms/reduction in weight in one week, discuss with team and consider stopping infusion.

CSCI Furosemide ongoing review: week two – any issues identified and actions taken

Day 8	
Day 9	
Day 10	
Day 11	
Day 12	
Day 13	
Day 14	

CSCI Furosemide ongoing review: week three – any issues identified and actions taken

Day 15	
Day 16	
Day 17	
Day 18	
Day 19	
Day 20	
Day 21	

CSCI Furosemide ongoing review: week four – any issues identified and actions taken

Day 22	
Day 23	
Day 24	
Day 25	
Day 26	
Day 27	
Day 28	