Guidance for Prescribing Subcutaneous Furosemide via Continuous Subcutaneous Infusion (CSCI) for Heart Failure

1. Introduction

This guidance provides a framework for assessment and management of end stage heart failure with subcutaneous Furosemide via CSCI (continuous subcutaneous infusion). It supports collaborative working between Cardiology Team/ Specialist Palliative Care Team and Primary Care Team in an attempt to support complex symptom management in the community and reduce lengthy hospital stays and inappropriate hospital admissions.

2. Patient identification

These would be patients who require parenteral diuretics for symptom management:

- Who are anticipated to be in the last 12 months of their life.
- On the GP Palliative Care Register.
- Who are on maximum oral diuretic medication.
- Who want to be at home.
- For whom a hospital admission would not offer additional benefit.
- OR the patient declines admission to hospital + one of the above.

For patients in the last few days of their life monitoring of weight or bloods may be burdensome and therefore not required as part of their management plan. However, those patients whose death is not imminent are likely to require serial monitoring of body weight and renal function to support and evaluate the use of subcutaneous Furosemide. Each individual patient will have an EHCP (Emergency Health Care Plan) to outline the specific prescribing, monitoring and review systems for their particular symptom burden. The overall aim for these patients would be for approximately 1kg/day weight loss with subcutaneous Furosemide. However, some patients may achieve symptom relief/benefit without achieving the desired weight loss and this should be measured by a patient perception score such as- PaCA

3. Furosemide Injection

Furosemide ampoules have a concentration of 10mg/ml in 25ml ampoules. This guideline recommends that Furosemide is delivered neat and is not to be mixed with other medications.

Furosemide is light sensitive. Therefore the syringe driver/ syringe /ampules should be kept out of direct sunlight.
4. **Delivery of subcutaneous furosemide**

This guideline recommends that subcutaneous Furosemide is delivered over 24 hours, as a continuous infusion via a Mckinley T24 pump. The volumes of Furosemide are large ranging from 20mls for 200mg up to 40mls for 400mg Furosemide in 24 hours. Traditionally the Mckinley pumps have been used with lock boxes, however if 50ml syringes are being used to deliver the larger volumes, these will not fit into a lock box.

The risk of delivering Furosemide without a lock box has been assessed by Cardiology, Pharmacy and Palliative care and deemed to be low risk. Therefore the guideline supports the delivery of Furosemide (if necessary due to syringe size) without a lock box. This is reflected in the trust Syringe driver policy.

5. **Monitoring**

To develop this service, we need to monitor the patient experience and clinical cases of those where subcutaneous Furosemide has been used. Data collection sheet - with the patient/attached to the EHCP. To be completed at the end of an intervention episode and faxed back to central point - Community Heart Failure Clinical Nurse Specialist (CHF CNS). The CHF CNS will collate forms.

All data collection sheets to be reviewed at the monthly HF MDT.

6. **Referral process**

During the service and pathway development, there needs to be co-ordination, senior responsibility and implementation of the guidance. For this to happen the Heart Failure MDT need to ensure that those selected meet the clinical criteria. Therefore, any Northumbria patient felt by a referring professional (GP/District Nurse (D/N)/HF CNS/Palliative Care doctor or nurse) to be suitable for CSCI Furosemide should be referred into the Northumbria HF MDT for discussion. This will ensure that those chosen are suitable and facilitate the central collection of data/evidence relating to the effectiveness of the process.
Routine referral

Refer with consultation referral/ letter to the HF MDT- “For consideration of CSCI Furosemide”. At point of referral also contact the CHF CNS to gain immediate advice and to support the referral process.

Information required - Name/ DOB/ NHS Number/ GP
PMH - Current performance status/ palliative care register - Current medications - patients’ preferences- GP/D/N agreement to share responsibilities.

**Process for patient starting subcutaneous furosemide**

- **Patient recognised to be on maximal oral diuretic therapy (including loop and thiazide diuretic where appropriate) and wishes care to be provided where possible at home**
  - If in hospital, refer to palliative care CNS
  - HF MDT agree patient may be suitable for CSCI furosemide
    - HF CNS discusses with GP and if in agreement, contacts palliative medicine consultant for initial domiciliary assessment
      - Joint domiciliary assessment of patient with pall med consultant, district nurses and HF CNS wherever possible to co-ordinate – EHCP constructed
        - Patient develops symptoms or signs which would trigger starting CSCI furosemide
          - Patient contacts DN team
            - DN team contact HF CNS and GP to inform them of starting CSCI, and to seek any additional support/advice if required
Urgent referral

Contact by telephone the Cardiologist / CHF CNS- To discuss the appropriateness for SC Furosemide. HF team will liaise with Palliative Care Team Hospital/Community - depending on patient setting.

7. Responsibilities

Cardiology Consultant:
• Consider appropriate patients for CSCI Furosemide at HF MDT.
• Provide expert HF advice to group and individual patients.
• Review data collected regarding the effectiveness of CSCI Furosemide.

Palliative Medicine Consultant:
• Consider appropriate patients for CSCI Furosemide at HF MDT.
• Provide the expert Palliative Care advice to the group and individual patients.
• Provide domiciliary support to patients/HF CNS/Primary care team regarding the implementation of CSCI Furosemide.

CHF CNS:
• Suggest appropriate patients for consideration of CSCI Furosemide at the HF MDT.
• Support the patients and Primary care team in the practical implementation of the EHCP.
• Collect data sheets at the end of each intervention and input data.

Palliative Care CNS:
• Support the patient /HF CNS/D/N team in the implementation of the EHCP.

GP:
• Identify potential patients for CSCI Furosemide.
• Refer in to the HF MDT.
• Support the use of EHCP and prescription of CSCI Furosemide.
• Support D/N in the collection of data/information required to feedback at the end of an intervention.

D/N Team:
• Support the patient.
• Implement the EHCP.
• Complete data collection sheet at the end of an intervention.
• Work alongside HF CNS/ Palliative Care professionals.
• Identify any clinical governance issues and feedback to HF MDT.