Elastomeric Pumps: Continuous Subcutaneous Delivery of Symptom Control Medication to Improve Transfer of Care in Palliative Cancer Patients

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Introduction

Syringe Drivers (SD) are used to deliver continuous subcutaneous infusions (CSCI) of medication to patients. The use of SD in palliative care and end of life (EoL) patients is a well-established practice globally. SD may contain up to 4 medications, based on stability data, tailored to patient needs for those who cannot swallow or absorb enterally; with uncontrolled symptoms or who are at the EoL.

Often in the UK, patients being discharged from secondary care requiring SD must have their CSCI stopped prior to transfer home and wait for community services or a hospice to set up and administer a new SD. This can lead to a loss in symptom control during transfer or delayed discharge if community services are unable to meet the need.

Alternatively, secondary care can discharge patients with expensive hospital SD pumps, a limited resource, and rely on these to be sent back to the organisation, which can incur significant financial loss if not returned. This option is offered to few patients as there are limited numbers of devices available in secondary care, resulting in a need for considered resource allocation and creating an inequity in access to symptom control at the EoL.

We proposed using elastomeric pumps (EP), a single use infusion pump designed to deliver CSCI of parenteral therapy for a defined period of time in a pilot study as an alternative device to deliver symptom control medications in an inpatient oncology ward at a single site tertiary cancer centre in central London. This pilot was conducted to assess EP suitability, efficacy and patient satisfaction, with a view to rolling out EP for discharge to the community. After successful completion of the pilot, EP were launched for discharge facilitation across all adult specialities of the teaching hospital.

Methods

Cancer palliative care patients on an established CSCI SD regime on the adult oncology wards were identified and consented to an EP containing an identical drug regime. Their symptoms were graded before changing and 4-hourly thereafter over a 24-hour period. The EP was weighed to ensure that the correct amount of medication was being infused at regular intervals. Patient satisfaction was recorded. Data was collected over six weeks.

Following a successful pilot, EP for patients being discharged were rolled out and four months of data was extracted from the hospital e-prescribing system.

Results

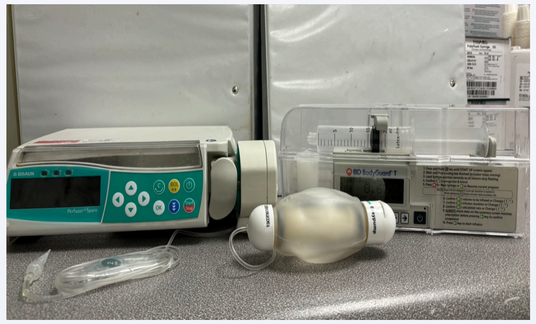

Figure 1. Comparison picture of EP vs BD vs bodyguard

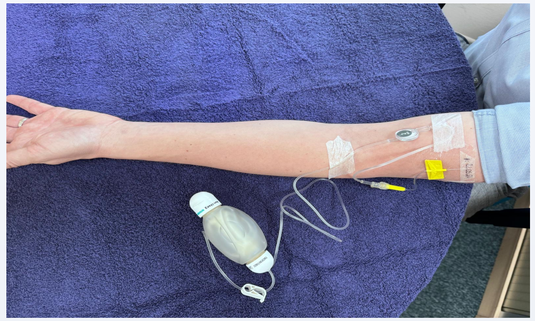

Figure 2.Picture of EP attached to patient

Patient Gender	Male N=6	Female N=3
Average Age	55 years	63 years
Average Pain scores (0-4) at start	1/4	1/4
Average Pain scores (0-4) at end	1/4	1/4
Issues recorded	1/6	0/3

Table 1. Summary Pilot Data`

Total number of patients receiving EP	20
Number of patients receiving EP to facilitate day leave	6
Number of patients receiving EP to facilitate discharge to hospice	5
Number of patients receiving EP to facilitate discharge home (with a community appointment within 24 hours of discharge)	9
Average number of drugs in EP	1.91

Table 2. Summary of EP usage following first four months of project roll-out`

Pilot Study:
Nine patients were recruited to the pilot study. Patients found the EP easier to mobilise with and less burdensome than standard SD pumps. A single issue was reported (leak from bung not being replaced).

Project Roll-out for Discharge:
20 patients received an EP in the first four months of the project roll-out. No issues were recorded on patient transfer of care. All 20 patients had an opioid in the EP, and the most common combination of drugs was oxycodone and ondansetron. On average, length of stay (LOS) was reduced by one day per patient with swifter transfer of care to the community.

Figure 3. UCLH EP Multidisciplinary Team

Discussion

An EP is an effective way of delivering CSCI of medication for palliative care patients allowing for a more timely, equitable and cost-effective discharge for patients on SDs from hospital. The sole issue reported during the pilot did not result in patient harm and there have been no subsequent issues reported since project roll out.

Prior experience suggests for a four month period the Trust could expect to lose two standard SD pumps in this time. Given LOS was reduced and using EP rather than standard SD pumps, there is a projected cost saving of over £13,000 in four months. The service has resulted in improved patient and family experience as well as cost savings.

The roll out of EPs at the Trust has been well received with positive feedback from all staff groups and service users. Patient numbers are rapidly increasing. A number of National Health Service organisations across the United Kingdom are hoping to adopt this service.

References

Selway, P Elastomeric pumps for symptom control medication in patients dying with COVID-19 BMJ Supportive and Palliative Care 2023 Oct;13(e1):e53-e54.