The frequency at which doses and drugs administered by continuous subcutaneous infusion are changed: a service evaluation of clinical practice in the UK

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1 BACKGROUND

With a recent investigation discovering that one-third of all patients in UK District General Hospitals are expected to be in the last year of life,[1] and a projected 20% rise in deaths per year from 468,875 (2014) to 561,000 (2035/36), the challenge of providing adequate end-of life care is daunting.[2] Further to this, NHS England has predicted the need to find £22 billion worth of savings to balance its books by 2020. As a result, new ways of providing and structuring services are required to optimise care for patients and make best use of available resources.

Continuous subcutaneous infusions (CSCIs) are an effective method of multiple drug administration in end of life care when the oral route is compromised. At present, currently available chemical and microbiological stability data limits the infusion time of a CSCI to a maximum of 24 hours. If practical, an increase in CSCI infusion duration to 48 hours may significantly help NHS resource utilisation throughout both primary and secondary care and maximise the opportunity for clinical staff to focus on compassionate patient centred care.

This service evaluation aimed to gather broader data regarding both the most frequently prescribed CSCI drug combinations and the frequency at which CSCI prescriptions are altered.

2 AIM

The primary outcome of this service evaluation was to gather broader data regarding the frequency at which CSCI prescriptions are altered in Acute NHS Trusts, to identify if 48-hour CSCIs are theoretically practicable.

Secondary objectives included identifying and comparing the most frequently prescribed drugs and drug combinations to the most-recent survey of national practice.[3]

3 METHODS

Anonymised prescription details of CSCIs containing a minimum of two drugs were collected by hospital pharmacists or members of palliative care teams across seven acute NHS hospitals daily for a minimum of 2 days, to a maximum of 7 days over a 6-month period. The study methodology, data collection and analysis was developed and actioned in collaboration with the Liverpool Clinical Trials Unit.

4 RESULTS

A total of 584 prescriptions from 288 patients were recorded across the seven sites during the data collection period, with the median duration of an unchanged CSCI prescription identified as 2 days. Table 1 describes an overview of CSCI prescribing across all sites recruited to the investigation.

Table 1: CSCI prescribing across sites

Site	No. of patients	No. of CSCI combinations	Median duration unchanged (days)
1	83	151	2
2	64	128	2
3	11	20	1.5
4	26	53	2
5	34	71	1
6	21	35	2
7	49	124	1
Total	288	584	2

5 RESULTS CONT...

Of the 584 CSCI prescriptions recorded, 91% (n=533) included an opioid. Table 2 describes the 5 most-commonly prescribed drugs. The 5 most-common CSCI drug combinations represented 24% (n=143) of the 584 prescriptions recorded (Table 3).

Like the most recent survey of national CSCI prescribing practice,[3] midazolam was the most commonly prescribed drug administered via CSCI. Oxycodone was the most commonly prescribed opioid despite current national guidance recommending morphine as first-line choice due to its lower acquisition cost.[4] The top two most-common drug combinations also corresponded with the most-recent national survey. Interestingly, the third most-common drug combination included the "four core" drugs needed for quality care of the dying patient[5] and was only prescribed at one site.

Table 2: Frequency and dose range of the top 5 drugs prescribed in CSCI combinations recorded

Drug	Frequency	Mean dose (mg)	Median dose (mg)	Dose range (mg)
Midazolam hydrochloride	309	11.63	10	(2.5, 60)
Oxycodone hydrochloride	230	21.09	15	(2.5, 150)
Levomepromazine hydrochloride	225	13.77	6.25	(6.2, 150)
Morphine sulphate	219	19.14	10	(2.5, 190)
Glycopyrronium bromide	120	1.35	1.2	(0.4, 2.4)

Table 3: Frequency of the top 5 CSCI drug combinations recorded

Drug 1	Drug 2	Drug 3	Drug 4	Frequency
Morphine sulphate	Midazolam hydrochloride	-	-	40
Oxycodone hydrochloride	Midazolam hydrochloride	-	-	35
Morphine sulphate	Glycopyrronium bromide	Levomepromazine hydrochloride	Midazolam hydrochloride	25
Morphine sulphate	Levomepromazine hydrochloride	Midazolam hydrochloride	-	22
Oxycodone hydrochloride	Hyoscine butylbromide	Midazolam hydrochloride	-	21

6 CONCLUSION

- This service evaluation shows that there is potential for the utilisation of 48-hour CSCI in a large proportion of this patient population. However, before a clinical feasibility study can be initiated, robust chemical and microbiological stability data will be required, as will the assessment of the perceptions from clinical staff, patients and their families on the acceptability of such a change in practice

7 REFERENCES

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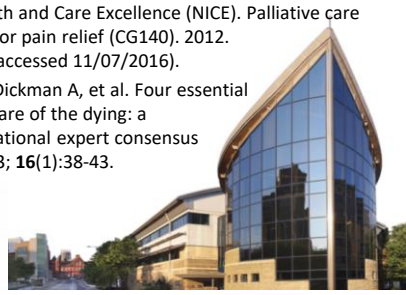

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