Symptom management of COVID-19 positive patients in an acute NHS trust: a specialist palliative care team perspective

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	COVID-19 positive deaths (n=75)
Subcutaneous symptom control medications prescribed	100% (n=75)
Subcutaneous symptom control medications administered	84% (n=63)
PRN medications	
Median PRN Morphine dose	2.5mg (R 1.25mg to 7.5mg, IQR 2.5mg to 3mg)
Median PRN Oxycodone dose	2.5mg (R 1.25mg to 4mg, IQR 2.5mg to 3mg)
Median PRN Alfentanil dose	100mcg (R 100mcg to 500mcg, IQR 100mcg to 100mcg)
Median PRN Midazolam dose	2.5mg (R 0.5mg to 15mg, IQR 2.5mg to 3mg)
Continuous subcutaneous infusions (CSCI's)	
69% (n=52) 51 contained Opioid, 40 Midazolam & 1 Levomepromazine alone	
Median Morphine CSCI dose	10mg (R 5mg to 60mg, IQR 10mg to 20mg, n=27)
Median Oxycodone CSCI dose	10mg (R 5mg to 20mg, IQR 5mg to 10mg, n=5)
Median Alfentanil CSCI dose	1mg (R 0.5mg to 3mg, IQR 0.5mg to 1.375mg, n=19)
Median SC morphine equivalent (all CSCI's)	15mg (R 5mg to 60mg, IQR 10mg to 20mg, n=51)
Median Midazolam CSCI dose	10mg (R 5mg to 60mg, IQR 10mg to 20mg, n=40)
Second line agitation medication	
Second line agitation – Levomepromazine	25mg x4 stat doses for 4 patients and CSCI's for 5 patients (median total dose 75mg (R 12.5mg to 100mg, IQR 25mg to 75mg)
Dose escalations	
Opioid dose escalation	23% (n=17) 15 patients had 1 dose escalation, and 2 patients 3 dose escalations
Midazolam dose escalation	17% (n=12) 7 patients had 1 dose escalation, 4 patients had 3 dose escalations and 1 patient had 4 dose escalations)

Fig 1. Medical management of end-of-life symptoms in COVID-19.

Introduction

Despite a 33% mortality rate for hospital admissions with COVID-19, data around end-of-life care needs in the context of the virus remain lacking.[1] We present a study of 89 COVID-19 hospital patients who received specialist palliative care team (SPC) input. This study delivers a novel understanding of the symptom needs of those dying from COVID-19, with recommendations for generalist management of these patients.

Materials and methods

The electronic patient records of 89 COVID-19 positive patients with SPC involvement in an acute trust during a

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Key symptom control recommendations:

1. The rapidity of clinical deterioration necessitates early communication with patients and families regarding symptom management, treatment escalation and preferences for care
2. Symptom control can be achieved with traditional medications, often at low doses, though early use of CSCI's is likely to be required
3. Symptom control medications should be used early in those struggling to tolerate active medical measures, irrespective of likely prognosis

Fig 2. Recommendations for generalist symptom management in COVID-19.

1-month period (20 March 2020 – 21 April 2020) were reviewed retrospectively. Patients were managed at ward level, some with non-invasive ventilation (NIV); intensive care unit patients were excluded. Patients were followed up at the end of April. Data were analysed using MS Excel.

Results and discussion

Eighty-four per cent (n=75) of COVID-19 positive patients had died at follow-up (median SPC involvement time of 2 days (interquartile range (IQR) 1–5)).

The most frequent symptoms in patients dying from COVID-19 were breathlessness (92%; n=69), pyrexia (44%; n=33) and agitation (45%; n=34). COVID-19 positive patients commonly required symptom control medications (84%; n=63) and continuous subcutaneous infusions (CSCIs; 69%; n=52), reinforcing our clinical experience of a highly symptomatic dying phase. Symptoms and trajectories were too unstable for transdermal medication use.

Symptoms were managed with low doses of opioid and benzodiazepine medications (Fig 1), with a median CSCI morphine equivalent dose of 15 mg (range 5–60; IQR 10–20; n=51) and median CSCI midazolam dose of 10 mg (range 5–60; IQR 10–20; n=40).

Patients' high symptom burden and rapidity of deterioration did not always allow typical practice of using as needed (PRN) medications for a 24-hour period prior to CSCI initiation. The early use of CSCIs was therefore essential to ensure symptom control, and access to medications given staffing pressures. This was reflected in the low median amounts of subcutaneous morphine and midazolam required in the 24 hours preceding a CSCI (morphine median 2.75 mg (IQR 2.5–7.5) and midazolam 2.5 mg (IQR 2.5–5)). A high percentage of alfentanil use in CSCIs (37%; n=19) was observed, possibly reflecting micro-embolic-driven renal impairment in COVID-19.[2] Only 23% (n=17) of patients required opioid dose escalation and 17% (n=12) required midazolam dose escalation, again reinforcing the ability to manage symptoms with low doses of medications. Few patients required glycopyrronium (n=15) and antiemetics (n=5) via a CSCI.

Thirty-three per cent (n=4) of COVID-19 positive patients who survived required symptom control medication, with 17% (n=2) requiring CSCIs; our experience was that some patients required CSCI's to enable them to tolerate medical management, such as NIV.

Conclusion

Those dying from COVID-19 often have a rapid deterioration and symptomatic dying phase, making early symptom control paramount. Symptom control can be achieved with traditional drugs often at low doses, though with earlier use of CSCIs. Effective symptom management may also improve response to active medical treatments, such as tolerance of NIV. Education and reassurance for generalists (Fig 2) in the early use of opioids and benzodiazepines is essential to managing symptoms of patients with COVID-19. ■

Conflicts of interest

None declared.

References

1 Doherty A, Harrison EM, Green CA *et al*. Features of 16,749 hospitalised UK patients with COVID-19 using the ISARIC WHO Clinical Characterisation Protocol. *medRxiv* 2020.04.23.20076042.
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