

Characteristics, symptom management and outcomes in Covid-19 patients referred to palliative care in a tertiary hospital

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ABSTRACT

Introduction: Coronavirus disease 2019 (COVID-19) variants pose unique challenges with inevitable premature death when cases of severe disease exponentially rise in a healthcare system. It is imperative that palliative care is provided with a proactive approach to symptom recognition, assessment, management and treatment escalation to ensure comfort throughout the course of this illness.

Objectives: To evaluate the characteristics, symptom burden, palliative care management and outcomes of COVID-19 patients referred to a palliative care unit (PCU) in a single tertiary hospital. Clinical outcomes specifically observed the management of agitation in these patients based on their Richmond Agitation and Sedation Scale (RASS) scores.

Methods: A retrospective observational study was conducted in a tertiary hospital by reviewing electronic medical records and extracting data from 1st June 2021 to 31st July 2021 of all COVID-19 patients referred to the PCU. **Results:** A cohort of 154 (75 males, 79 females) COVID-19 patients was referred to the PCU with a mean age of 67 (20-95) years. The median number of days of COVID-19 illness before referral was 7(4-11), with 79.3% of patients being in categories 4 and 5. The median duration of the PCU involvement was 4(1-24) days; 74% of families were engaged in virtual platform communication. The most prevalent symptoms were dyspnoea (73.4%) and agitation (41.6%). Common medications used were opioids, antipsychotics and benzodiazepines. Among agitated patients, none had RASS scores above +2 in the last encounter. Palliative care doctors in the team reported complete effectiveness in patient's symptom control in 74% of patients.

Conclusions: A hallmark of severe COVID-19 is rapid deterioration, which calls for proactive assessment and urgent palliation. Breathlessness and agitation are priority symptoms to address. Among agitated patients, benzodiazepines and antipsychotics are highly effective in addressing agitation and reducing RASS scores. Communication with families using virtual platforms is effective in providing a supportive presence and closure when face-to-face communication is not possible.

KEYWORDS:

COVID-19, palliative care, symptom management, RASS

INTRODUCTION

Coronavirus disease 2019 (COVID-19) was first reported to the World Health Organization (WHO) on 31st December 2019.¹ By 30th January 2020, the WHO Director-General had declared the COVID-19 outbreak a public health emergency of international concern, WHO's highest level of alarm.¹

The emergence of COVID-19 variants of concern²⁻⁶ has brought upon a deadlier disease in terms of its transmission and its disease severity. Its high transmissibility has led to an exponential rise in the number of cases in Malaysia and globally. This surge posed unique challenges⁷ to healthcare systems in terms of the extraordinary and sustained demands on public health and healthcare systems, resulting in the need to ration medical equipment and interventions.⁸ The unfortunate reality of healthcare systems being overwhelmed by large waves of COVID-19 is that it leads to premature death due to limitation of resources and inequitable healthcare provision. Therefore, while every effort should be made to prevent such inequitable care, it is imperative that palliative care is always provided to alleviate the suffering of these patients.⁹⁻¹¹

Malaysia has so far experienced its most deadly wave of the COVID-19 pandemic, beginning in May 2021, when the numbers of deaths increased rapidly, reaching its peak in the months of July and August 2021. At its peak, the COVID-19 in-patient burden reached up to 2799 hospital admissions and up to 290 deaths within a single day.¹² Of these cases, over 1/3 were in the Klang Valley and the central state of Selangor Darul Ehsan. During this time, palliative care services were called upon to help provide the best care possible for patients with severe COVID-19 in the face of limited resources and high mortality risk.

International reports¹³ have found that patients referred for palliative care were of older ages with higher rates of comorbidities, reflecting global data on COVID-19 mortality risk. The time spent under palliative care was short with a significantly high mortality rate.¹⁴ Not surprisingly, this is consistent with the disease trajectory, as evident by its rapid deterioration¹⁵ to mortality. The main symptoms^{13,14,16} encountered were dyspnoea, followed by agitation, drowsiness, pain, delirium, respiratory secretions, cough and fever. The route of administration of medications to manage symptoms was mainly through continuous subcutaneous infusion (CSCI). Pharmacological medication used for

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symptom control was opioids for dyspnoea, with morphine being the most commonly used opioid.^{17,18} The median dose of subcutaneous morphine of 10mg–15mg/day was required to address dyspnoea.^{14,16} Alfentanil or fentanyl was used for patients with renal impairment for dyspnoea. Addressing symptoms of restlessness and agitation coupled with a short imminent dying phase proved to be very challenging for healthcare workers. Benzodiazepines were found to be useful in addressing agitation.^{13,16} The assessment of clinical outcomes in terms of the overall condition of patients was determined by clinical impressions of effectiveness.^{13,16}

With regard to assessing levels of agitation in patients with COVID-19, there is a lack of objective assessment tools available in the existing literature. The Richmond Agitation and Sedation Scale (RASS), however, is an instrument designed to assess the level of alertness and agitated behaviour in critically ill patients. It helps to establish simple and discrete criteria for assessing arousal and agitation and can be useful to guide sedation therapy to address agitation in COVID-19 patients.

Another important aspect in caring for critically ill patients with COVID-19 is communication. It is challenging to deliver effective communication in COVID-19 isolation wards as health professionals will be speaking to patients under layers of personal protective equipment, which muffles voices and obscures nonverbal cues.¹⁹ Emerging evidence supports the use of video consultations with patients and family members as an effective, accessible, and acceptable method of communication.

In this retrospective observational study, we seek to evaluate the characteristics, symptom burden, palliative care management and outcomes of COVID-19 patients from the experience of a palliative care unit (PCU) in a single tertiary hospital in Malaysia. Clinical outcomes specifically observed the management of agitation and delirium in these patients based on their RASS scores. We also sought to evaluate the utility of virtual platform communication in managing these patients.

MATERIALS AND METHODS

This is a retrospective observational study that was conducted in Hospital Selayang, a tertiary hospital located in the state of Selangor Darul Ehsan, Malaysia. Hospital Selayang became an acute fully COVID-19 hospital, which was designated to exclusively manage COVID-19 infected patients during the peak pandemic period from June 2021 until September 2021. High-risk groups of patients with COVID-19 would be admitted to isolation wards regardless of their illness category, and those deemed to have a high risk of mortality or who were inevitably dying from COVID-19 would be referred to the PCU.

Data were collected retrospectively for all patients aged more than 18 who were referred to the PCU from 1st June 2021 to 31st July 2021 (8 weeks period). Patients confirmed with positive results from nasopharyngeal swab COVID-19 polymerase chain reaction tests were included.

Patients were identified from the referral system record of the PCU, and their electronic medical records, including medical notes, nursing notes, blood investigations and medication prescriptions, were reviewed. Variables included baseline demographics; comorbidities; palliative care phase of illness²⁰ (stable, unstable, deteriorating and terminal) upon the first review; category phase of COVID-19 illness; day of COVID-19 illness when patients received the first review by the palliative care team; days of palliative care team involvement; COVID-19-related end-organ damage; source of referral; outcomes of patients (death, post-COVID care ward and home); utilisation of virtual communication (via platforms of WhatsApp video call, Zoom meeting and Google Meet) with family members; and requirement for a family conference and goals of care (GOC) discussion were extracted from the records. Symptom burdens were identified, and drug delivery via different routes, such as per oral, CSCI and intravenous infusion, for symptom control with final doses used was recorded. Clinical efficacy on symptom control was sought based on clinical notes at the last encounter made by the palliative care team or primary team in charge.

Specifically, assessment of the RASS among agitated patients was recorded before and after medication was started to determine the effectiveness of symptom control. RASS is a 10-point scale, with four levels of anxiety or agitation (+1 to +4 [combative]), one level denoting a calm and alert state (0), and 5 levels of sedation (-1 to -5) culminating in unarousable (-5).

Data were analysed by SPSS version 26 (Armonk, NY). Descriptive statistics were presented as mean, median and range in interval ratio variables. Nominal and ordinal variables were generated in frequency counts—n, %.

RESULTS

A total of 154 COVID-19 patients were referred to the palliative care team between 1st June and 31st July 2021. The mean age was 67 years (20-95) of which 54.5% (84) comprised of the Malay ethnic group, followed by 27.9% (43) Chinese and 13.0% (20) Indian patients. Among 154 patients, 81.6% (111) suffered from more than 1 comorbidity, with the most common comorbidities being hypertension (66%), diabetes mellitus (49.4%) and dyslipidaemia (26%).

In terms of the clinician-assessed palliative care phase of illness, 39.6% of our cohort was noted to be in the stable phase (no immediate symptom management required), whereas 31.2% were unstable (requiring immediate symptom control). The majority of patients were referred with category 4 (48.1%) or category 5 (38.3%) illness, meaning they were mostly requiring oxygen therapy with severe illness. The median time to referral was on day 7 [4-11] of illness. In this cohort of COVID-19 patients, 50% developed complications of acute kidney injury and 11% had transaminitis. The duration of palliative care involvement was noted to be relatively short, with a median duration of only 4 (1-24) days; 74.7% of patients passed away, whereas 7.8% of patients were transferred to a post-COVID care ward to continue care in the context of pulmonary rehabilitation and weaning down oxygen requirements (to a minimum level at 3L/min)

Table I: Demographics, clinical characteristics, palliative care phases, virtual communication involvement and clinical impression on drug effectiveness in COVID-19 patients referred to the palliative care team

Total Number of Palliative COVID-19 Patients	N=154
Age, mean (range) years	67 (20 - 95)
Gender; n (%)	
Male	75 (48.7)
Female	79 (51.3)
Ethnicity; n (%)	
Malay	84 (54.5)
Chinese	43 (27.9)
Indian	20 (13.0)
Others	7 (4.5)
Comorbidities; n (%)	
Hypertension	103 (66.0)
Diabetes mellitus	76 (49.4)
Dyslipidaemia	26 (16.9)
Ischemic heart disease	21 (13.6)
Cerebrovascular disease	20 (13.0)
End-stage kidney disease	17 (11.0)
Chronic kidney disease	17 (11.0)
Advanced malignancy	14 (9.1)
Congestive cardiac failure	7 (4.5)
Bronchial asthma	7 (4.5)
Chronic obstructive pulmonary disease	6 (3.9)
Atrial fibrillation	6 (3.9)
Obesity	4 (2.6)
Neurodegenerative disease	4 (2.6)
Connective tissue disease	3 (1.9)
Psychiatric illness	3 (1.9)
Pulmonary tuberculosis	1 (0.6)
Epilepsy	1 (0.6)
Others*	13 (8.4)
No known medical illness	18 (11.7)
Total comorbidities >1; n (%)	111 (81.6)
Palliative Care Phase (upon first review); n (%)	
Stable	61 (39.6)
Unstable	48 (31.2)
Deteriorating	32 (20.8)
Terminal	13 (8.4)
Category of COVID-19; n (%)	
1	1 (0.6)
2	5 (3.2)
3	15 (9.7)
4	74 (48.1)
5	59 (38.3)
Day of illness in COVID-19, median (range)	7 (4-11)
Days of palliative care involvement, median (range)	4 (1-24)
COVID-19-related end-organ damage; n (%)	
Acute kidney injury	77 (50.0)
Transaminitis	17 (11.0)
Referral Source; n (%)	
Ward	145 (94.2)
ED	7 (4.5)
ICU	2 (1.3)
Patient outcomes, n (%)	
Death	115 (74.7)
Post-COVID care ward	12 (7.8)
Home	27 (17.5)
Clinical impression of effectiveness	
Complete	114(74.0)
Partial	19 (12.3)
Unknown (patient died before follow up)	21 (13.6)
Involved virtual communication; n (%)**	
Yes	114 (74.0)
No	40 (26.0)
Discussion on GOC; n (%)	
Yes	131 (85.1)
No	23 (14.9)

n(%): number of patient(percentage).

ED: Emergency Department, ICU: Intensive Care Unit, GOC: Goals of Care

*Others: Knee OA, Paroxysmal nocturnal haemoglobinuria, Trisomy 21, Hypothyroid, Cerebral Palsy and Gout.

** Virtual communication in forms of WhatsApp video call, Zoom meeting, Google Meet, phone call.

Table II: Prevalence of symptoms and number of symptoms recorded per patient

Symptoms observed (in patients)	N (%)
Dyspnoea	113 (73.4)
Agitation	64 (41.6)
Cough	11 (7.1)
Respiratory Secretion	9 (5.8)
Fever	7 (4.5)
Pain	6(3.9)
Nausea/Vomiting	4 (2.6)
Others	10 (6.5)
Seizure	3
Myoclonic jerk	1
Insomnia	3
Itchiness	1
Haemoptysis/UGIB	2
Number of symptoms recorded per patient	N (%)
0	20(13)
1	52 (33.8)
2	71 (46.1)
3	10 (6.5)
4	1 (0.6)

UGIB: Upper gastrointestinal bleeding.

Table III: Frequency of drugs that were used during the first encounter and the last encounter

Drug Used	Drugs During the First Encounter N (%)	Drugs During the Last Encounter N (%)
Drugs given per oral		
Aq morphine PRN	8 (5.2)	11(7.1)
Aq morphine Regular	13 (8.4)	10 (6.5)
Drugs given by s/c		
s/c Morphine prn	23 (14.9)	17 (11)
s/c Morphine regular	6 (3.9)	2 (1.3)
Drugs given by CSCI		
Fentanyl	37 (24)	31 (20.1)
Fentanyl + haloperidol	17 (11)	10 (6.5)
Fentanyl + midazolam	10 (6.5)	15 (9.7)
Morphine	7 (4.5)	2 (1.3)
Morphine + haloperidol	3 (1.9)	4 (2.6)
Morphine + midazolam	1 (0.6)	4 (2.6)
Midazolam alone	4 (2.6)	3 (1.9)
Fentanyl + midazolam + haloperidol	-	19(12.3)
Fentanyl + midazolam + haloperidol + buscopan	-	1 (0.6)
Fentanyl + buscopan	-	1 (0.6)
Fentanyl + levomepromazine	-	1 (0.6)
Morphine + haloperidol + midazolam	-	3 (1.9)
Drugs given by IVI		
IVI Fentanyl + midazolam	7 (4.5)	4 (2.6)
IVI Morphine + midazolam	3 (1.9)	3 (1.9)
Others**	15 (9.7)	13 (8.4)

Aq: aqueous, s/c: subcutaneous, CSCI: continuous subcutaneous infusion, IVI: intravenous infusion, PRN: when necessary (pro re nata).

** Others: Paracetamol, Bromhexine, TD Fentanyl, Tramadol, Lorazepam, None.

Table IV: Median dose of medication that were used during the first and the final titration doses

Drug Used	Drug Dose in 24hours: median, (range) [IQR] (initial starting dose)	Drug dose in 24hours: median, (range) [IQR] (last titrated dose)
CSCI Morphine (mg)	10	13 (10-20)
CSCI Fentanyl (mcg/hr)	6 (4-12)	12 (6-16)
CSCI Midazolam (mg)	10	10 (10-15)
CSCI Haloperidol (mg)	1 (1-2)	1 (1-2)
CSCI Buscopan (mg)	60	60
CSCI Levomepromazine (mg)	-	25

CSCI: continuous subcutaneous infusion, [IQR]: interquartile range

Table V: RASS score for patients with agitation during the first and the final encounters

RASS Score	First Encounter	Final Encounter
+3	19 (29.7)	–
+2	26 (40.6)	–
+1	7 (10.9)	–
0	5 (7.8)	3 (4.7)
–1	4(6.3)	16 (25)
–2	2 (3.1)	22(34.3)
–3	–	16 (25)
–4	1 (1.6)	7 (10.9)

** RASS: Richmond Agitation Sedation Scale—it is a validated tool to assess the level of alertness and agitated behaviour in critically- ill patients. It consists of 10-point scale, with four levels of agitation (+1 to +4 [combative]), one level denoting a calm and alert state (0), and 5 levels of sedation (–1 to –5) culminating in unarousable (–5)

Box 1: Adapted from clinical management of confirmed COVID-19

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Category 1	Asymptomatic
Category 2	Symptomatic, No Pneumonia
Category 3	Symptomatic, Pneumonia
Category 4	Symptomatic, Pneumonia, Requiring supplemental oxygen
Category 5	Critically ill with multiorgan involvement

Confirmed COVID-19 patients in Malaysia are classified into 5 categories as stated in box 1.

Box 2: Definition of Palliative Care Phases

Stable	Adequately controls existing problems and symptoms and plans further interventions to maintain symptom control and quality of life. Family and carer situation is relatively stable, and no new issues are apparent
Unstable	Existing problems rapidly increase in severity and/or New problem(s) develop that were not anticipated in the existing plan of care and/or Family and carer circumstances change that suddenly impact on patient care
Deteriorating	Overall functional status is declining and gradual worsening of existing problems and/or New, but anticipated, problems develop and/or Family and carers experience gradual worsening distress, which impacts patient care
Terminal	Death is likely within days The Palliative Care Phase is reliable and acceptable in a national study, aims to assist carers and healthcare professionals to assess, plan and care for patients with advancing life-limiting illness.

accordingly. Twenty-seven patients managed to discharge home without the need of oxygen support and no further need of specialist palliative care. Overall, the clinician's impression of the effectiveness of symptom control was reported as 74% (114) of patients with complete control of symptoms, 12.3% (19) with only partial control and 13.6% (21) died before clinical effectiveness could be determined.

A total of 74% of patients and family members were able to engage in discussions with the palliative care team using virtual communication platforms. GOC discussions with patients or families, if patients were unfit to participate, were required in 85.1% (131) of cases.

The prevalence of the symptoms (Table II) reported included dyspnoea 73.4% (113), followed by agitation 41.6% (64), cough 7.1% (11), fever 4.5% (7), pain 3.9% (6), nausea 2.6% (4) and others 6.5% (10). Among the symptom burdens, 53.2% (82) of patients had at least two or more symptoms and 33.8% (52) had one symptom, whereas 13% (20) of patients were noted to be asymptomatic.

A total of 51.3% (79) of patients were started on CSCI upon the first review for symptom control, and this increased to 61% (94) by the last encounter. In the cohort, during the last review, 70.1% (108) of patients required regular opioid therapy, with fentanyl being more commonly used (75.9%) compared to morphine (24.1%). The median (Table IV) starting dose for the s/c fentanyl and s/c morphine was 6mcg/h (interquartile range [IQR] 4mcg/h,12mcg/h) and 10mg/day, respectively. The median final titrated dose for s/c fentanyl was doubled to 12mcg/h (IQR 6mcg/h,16mcg/h), whereas for s/c morphine, it was 13mg/day (IQR 10/day,20/24h). The median dose of s/c midazolam was observed at 10mg/day (IQR 10/day,15/day).

Agitation was the second most common symptom with a total of 64 patients recording this symptom. Of these patients, 29.7% (19) had RASS scores of +3 and 40.6% (26) had RASS scores of +2 (Table V). During the last review, no patients were observed to have RASS scores suggesting agitation and restlessness.

DISCUSSION

This study describes the demographics, clinical characteristics, symptom management and delirium outcomes of COVID-19 patients referred to a palliative care team in a tertiary government hospital in Selangor, Malaysia. It provides a glimpse into the palliative care needs of patients with severe COVID-19 infections and a high risk of mortality during an acute surge of COVID-19 where the healthcare system is overwhelmed.

In our study, patients tend to be in their 60s, with a slight female preponderance, a significant level of functional impairment and a high burden of comorbidity.^{12,21} Hypertension and diabetes were the most frequent comorbidities in our patients. The mean age of patient's referred to the palliative care team was lower than most international reports,²² which may reflect the high prevalence of comorbidities,²³ such as diabetes mellitus and hypertension, as well as the lower life expectancy in Malaysia.²⁴

Patients who were initially referred to the palliative care team were mostly in the stable phase (palliative care phase of illness), and this is in keeping with the Malaysian government health policy whereby all COVID-19 patients with conditions and comorbidities predisposing them to a high risk of clinical deterioration²⁵ must be admitted to a hospital. Although about 40% of patients seemed stable at first review, the final outcome, unfortunately, resulted in death for 74.7% of the cohort. This illustrates how the clinical course of this illness is indeed very acute, with rapid deterioration occurring over a period of short days. Another reason for this would be due to the occurrence of silent hypoxemia,²⁶ in which patients may appear clinically stable, whereas in actual fact, they are having a deteriorating respiratory function. Hence, when caring for patients with severe COVID-19, clinicians must always be vigilant to monitor patients for rapidly progressing symptom distress, as the duration of palliative care involvement tends to be brief and there is a narrow window of opportunity to ensure adequate comfort.

Given the rapid deterioration in our patient group, early identification of COVID-19 patients with poor prognostic factors is imperative to allow optimal palliative care, symptom management and support at the end of life.²⁷ The most common symptoms in our study were dyspnoea and agitation, followed by cough, respiratory secretions, fever, pain, nausea and vomiting. In terms of agitation, 70.3% scored +2 or more on the RASS scale, suggesting a severe degree of distress. In terms of symptom clusters, the majority of patients (53.2%) reported 2 or more symptoms, and therefore, the symptom burden is indeed high.

Another observation is that 61% of the patients reported COVID-19-related organ failure. This was mainly due to acute kidney injury, which was evident in 50% of patients, and acute transaminitis, involving 11% of patients. Kidney disease has been reported as a poor prognostic factor, which is associated with mortality in COVID-19.¹⁹ This has significant implications, especially when considering the use of opioids, and explains why fentanyl was very commonly used in our setting.

Oral pharmacological management is the preferred route unless the patient is unconscious or when rapid titration of medications for symptom control is needed. CSCI was required in most cases, but with relatively low doses of opioids and benzodiazepines for effective symptom control, which is in keeping with other published reports.^{14,16} Given the short duration of palliative care team involvement, we found that it is important that CSCIs be commenced promptly at conservative initial doses when the terminal phase is diagnosed in a patient with COVID-19 and the doses be titrated to effect. Although many patients required CSCI opioids and benzodiazepines because of their rapidly deteriorating condition and because fentanyl was frequently used, another reason why CSCI medications were commonly used is that it helped to reduce the need for nursing staff to repeatedly go in and out of isolation areas to provide 4 hourly injections. Although nursing staff had tried their best to provide medications on time, due to the overwhelming numbers of admissions to already crowded wards, this was far from optimal, and practical measures were required to provide the best care and comfort possible.

The pandemic has presented unique challenges for health services as efforts to limit the risk of infection to staff and patients are balanced against the need for communication and support for patients and their families. Recognising this, we embarked on the use of videoconferencing with smart devices for virtual interaction to allow communication between family, caregivers and patients. Communicating via video conferencing can enhance the 'therapeutic presence'^{28,29} of healthcare professionals with family and caregivers as a new norm in this pandemic. It calls for urgent adaptation to tele-SPIKES in clinical practice to facilitate family conferences.³⁰⁻³² A good framework can be effective guidance to practitioners in virtual communication, especially in the context of COVID-19, which often faces numerous potential uncertainties. It emphasises on (1) Goals—discuss GOC and ask about expectations; and (2) Options—clarify current treatment options available with risks and benefits. To acknowledge potential uncertainties in the disease trajectory (3) Opinions—to elicit patients' preferences based on available options and to achieve shared decision-making; (4) Documentation—document the discussion on goals, options, opinions, preferences and care plan. Overall, 74% of patient and family discussions were conducted using a virtual platform, and this was found to be effective and acceptable in this study population.

The learning point in this retrospective study is effective symptom management of dyspnoea and agitation with standard doses of opioid and benzodiazepine in COVID-19. This study echoed similar findings with other literatures.^{13,14,16} In fact, it reflects that palliative care is not limited to end-of-life care to ease physical suffering in COVID-19 with a short prognosis but symptom relief on dyspnoea among COVID-19 survivors, for example, while waiting for pulmonary rehabilitation. Nevertheless, it provides an insight into the preparedness for humanitarian crises in the future with palliative care philosophy. Access to palliative care is about human dignity and basic human rights. Let us leave no one behind for those in need but explicitly support them.

There are a number of limitations in this study, which first include the fact that it was a retrospective study using electronic medical record review, as the acute exponential rise in case numbers during this deadly wave of the pandemic did not allow for sufficient preparation to conduct a prospective study. Hence, the selection of patients referred to the PCU team after a detailed discussion between specialists and consultants was not captured in this study. Further studies in the future can be conducted prospectively with well-designed selection criteria for our unique patient population when limitation of resources is not present and to assess acceptability of PCU service from patients. Also, the study sample was small, from a single tertiary hospital located in urban Selangor; hence, the demographic characteristics and needs of patients may not be reflective of the entire Malaysian population. Our study included only patients referred to the PCU, and therefore, there is a lack of information about the palliative care needs of other inpatients with COVID-19 or patients from the community. We also did not collect data on symptom severity apart from looking at the RASS score.

Additional research work is required to look into the needs of other patients, including those in the community and those dying in hospitals who are not referred to the PCU. The assessment of response to medication was subjective, and as the length of palliative care involvement was relatively short, there was not always sufficient time to assess the effectiveness of treatments.

CONCLUSION

This study demonstrated our Malaysian experience of palliative care needs in patients with severe COVID-19. It also demonstrates the role of palliative care in such situations and how it can address symptom distress and alleviate suffering despite various challenges. Virtual communication platforms are indeed a useful and necessary approach to maintaining therapeutic relationships and a supportive presence in this 'new era' where physical distancing is unavoidable. It is important that such experience in handling severe COVID-19 will allow more preparedness in managing future pandemics with palliative care principles.

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