Quantifying clinical load and role for Generalist Palliative Care in COVID-19 patients - results from a cohort study on the Predictors of High Opioid and Benzodiazepine use In COVID-19 patients (PHOBIC)

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Introduction

The combination of rapidly worsening symptoms and overwhelmed Specialist Palliative Care (SPC) resources resulted in inadequate symptoms control in dying COVID-19 patients.^{1,2} The demand for palliative care specialists is growing rapidly and the need to profile a group of severe COVID-19 patients should be considered as they can be adequately supported by Generalist Palliative Care (GPC) alone.

Table 2. Clinical variables during index COVID-19 hospitalization

Variables	Low user (n = 115)	High user (n = 119)	p-value
COVID-19 related			
COVID-19 therapeutics during the			
last 48 hours of life	19 (16.5)	45 (37.8)	<0.001
ISARIC-4C score	13 (11 – 15.5)	12 (10 – 16)	0.35
Laboratory and radiological data			



Thus, the aim of this study is to measure the quantity and identify clinical factors of patients with severe COVID-19 infection who can be supported by GPC.

Methods

This retrospective cohort study examined non-ventilated severe COVID-19 patients admitted to the National Centre for Infectious Diseases (NCID) in Singapore and seen by SPC from January 2021 to July 2022.

Patients were directly referred by the NCID team or identified by the SPC based on resuscitation status and oxygen requirement. Baseline demographics, clinical status based on the International Severe Acute Respiratory and emerging Infections Consortium (ISARIC-4C) score, Edmonton Symptom Assessment System revised (ESAS-r) and palliative-related treatments were recorded. Patients with a morphine equivalent daily dose (MEDD) of \geq 45mg and/or benzodiazepine use for dyspnea were grouped as high users, while patients with MEDD <45mg were considered as low users. We conducted multivariate analysis to identify factors in patients suitable for GPC.

<u>on admission</u>

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White blood cell count in 10^9/L	8.1 (5.8 – 9.8)	6.4 (4.3 – 9.6)	0.03
Lactate dehydrogenase in U/L	592.0 (445.5 - 814.0)	566.5 (415.8 – 758.0)	0.28
C-Reactive Protein in mg/L	60.0 (17.1 – 116.8)	72.4 (41.5 – 120.9)	0.10
multi-lobar consolidation, n (%)	57 (49.6)	69 (58.0)	0.24

Symptom burden on first palliative

	Fraction of inspired oxygen in %	60 (32.5 – 100)	100 (50 – 100)	< 0.001
	Oxygen saturation in %	96 (95 – 98)	95 (92 – 98)	0.04
Respiratory rate in breaths per				
	minute	20 (18 – 24)	25 (20 – 32)	< 0.001
	Richmond Sedation Agitation			
	Score	0 (01)	0 (01)	0.15
	Pain score using NRS	0 (0 – 0)	0 (0 – 0)	0.58
	Drowsiness score using NRS	0 (0 – 3)	3 (0 – 6)	0.12
	Dyspnea score using NRS	0 (0 – 3)	3 (0 – 6)	< 0.001
	<u>Outcomes</u>			
	Median MEDD in mg	24 (24 – 29)	76 (51.5 – 103.8)	< 0.001
	Mortality, n (%)	62 (53.9)	117 (98.3)	< 0.001
	Length of hospitalization	12 (8 – 20)	9 (5 – 14)	< 0.001

Values denote Median (IQR) unless specified otherwise

ISARIC-4C: International Severe Acute Respiratory Infection Consortium – Comprehensive Clinical Characterization Collaboration; MEDD: Morphine equivalent daily dose; NRS: Numerical Rating Scale

Table 1. Baseline subject characteristics

Variables	Low user	High user	p-value
	(n = 115)	(n = 119)	
Demographics			
Age	83 (76 – 91)	85 (78 – 90)	0.81
Male gender, n (%)	56 (48.7)	66 (55.5)	0.36
Chinese ethnicity, n (%)	101 (87.8)	101 (84.9)	0.59
Pre-admission abode, n (%)			0.82
Home	74 (64.3)	84 (70.6)	
Nursing home	27 (23.5)	21 (17.6)	
Others	14 (12.2)	14 (11.8)	
<u>Function</u>			
Ambulation, n (%)			0.35
Independent	20 (17.4)	25 (21.0)	
Requiring walking aids	23 (20.0)	32 (26.9)	
Chair / Bedfast	71 (61.8)	62 (52.1)	
Palliative Performance Scale in %	30 (20 – 40)	30 (10 – 30)	0.002
Medical history			
Dementia, n (%)	66 (57.4)	62 (52.1)	0.43
Cancer, n (%)	23 (20.0)	19 (16.0)	0.50
Chronic respiratory disease, n (%)	22 (19.1)	19 (16.0)	0.61
Heart disease, n (%)	47 (40.9)	57 (47.9)	0.30
Chronic kidney disease, n (%)	28 (24.3)	42 (35.3)	0.09
Stroke, n (%)	40 (34.8)	43 (36.1)	0.89
Age Adjusted CCI	7 (5 – 8)	7 (5 – 9)	0.75
Baseline opioid usage, n (%)	3 (2.6)	8 (6.7)	0.22
Fully COVID-19 vaccinated, n (%)	53 (46.1)	50 (42.0)	0.60

Results

234 patients were part of our study. 115 (49.14%) of them were low users. There were no significant difference in age, gender, functional status, medical history (Table 1) and clinical variables such as use of therapeutics, ISARIC-4C scores and investigations (Table 2). The low users had lower mortality rate and lower symptom burden but with longer hospital stay (Table 2). Our multivariate analysis indicated that patients with low ESAS-r graded dyspnea scores were more likely to be low users (Table 3).

Conclusion

Our study revealed that almost half of patients with severe COVID-19 referred to SPC were low users. These patients have low dyspnea scores and can be supported by GPC alone. However, from our experience, many of them may have concomitant life limiting illnesses and were referred not only because of their symptom burden but also for goals of care discussion and disposition, of which can also be addressed by a well-trained GPC.

Values denote Median (IQR) unless specified otherwise. CCI: Charlson Comorbidity Index SPC: Specialist Palliative Care

References

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This study only classified patients to either SPC or GPC based on medication required for symptom management. Further studies should be made using other domains of palliative care.

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