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PII: S0885-3924(20)30426-7

DOI: <https://doi.org/10.1016/j.jpainsymman.2020.05.022>

Reference: JPS 10499

To appear in: *Journal of Pain and Symptom Management*

Received Date: 17 May 2020

Revised Date: 18 May 2020

Accepted Date: 19 May 2020

Please cite this article as: Haydar A, Lo KB, Goyal A, Gul F, Peterson E, Bhargav R, DeJoy III R, Salacup G, Pelayo J, Albano J, Azmaiparashvili Z, Ansari H, Aponte GP, Palliative Care Utilization among Patients with COVID-19 in an Underserved Population: A Single-Center Retrospective Study, *Journal of Pain and Symptom Management* (2020), doi: <https://doi.org/10.1016/j.jpainsymman.2020.05.022>.

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Palliative Care Utilization among Patients with COVID-19 in an Underserved Population: A Single-Center Retrospective Study

Ali Haydar MD MA¹, Kevin Bryan Lo MD¹, Abhinav Goyal MD², Fahad Gul MD¹, Eric Peterson DO¹,
Ruchika Bhargav DO¹, Robert DeJoy III DO¹, Grace Salacup MD¹, Jerald Pelayo, MD¹, Jeri Albano MD¹,
Zurab Azmaiparashvili MD MSc¹, Huma Ansari MD³, Gabriel Patarroyo Aponte MD^{4,5}

¹Department of Medicine, Einstein Medical Center Philadelphia

²Department of Gastroenterology and Hepatology, Einstein Medical Center Philadelphia

³KeystoneCare Palliative Care, Einstein Medical Center Philadelphia

⁴Pulmonary and Critical Care and Sleep Medicine, Einstein Medical Center Philadelphia

⁵Sidney Kimmel College of Thomas Jefferson University, Philadelphia, PA.

Funding: There was no monetary or material support for this research investigation.

Conflict of interest: None of the authors have any conflicts of interest to disclose.

Keywords: COVID-19, novel coronavirus, palliative care, underserved population

Word count: (1405 body), (222 abstract)

Address for correspondence:

Ali Haydar MD MA

Einstein Medical Center, Philadelphia

5501 Old York Road Philadelphia PA 19141

Email: HaydarAl@einstein.edu

Abstract**Background**

As healthcare institutions mobilize resources to address the coronavirus disease 2019 (COVID-19) pandemic, palliative care may potentially be underutilized. It is important to assess the use of palliative care in response to the COVID-19 pandemic.

Methods

This is a retrospective single center study of patients with COVID-19 diagnosed via reverse transcriptase–polymerase chain reaction assay (RT-PCR) admitted between 3/1/2020 and 4/24/2020. An analysis of the utilization of palliative care in accordance with patient comorbidities and other characteristics was performed while considering clinical outcomes. Chi square test was used to determine associations between categorical variables while T tests were used to compare continuous variables.

Results

The overall mortality rate was 21.5% (n=52) and in 48% (n=25) of these patients, palliative care was not involved. Fifty nine percent (n=24) of those who had palliative consults eventually elected for comfort measures and transitioned to hospice care. Among those classified as having severe COVID-19, only 40% (n=31) had palliative care involvement. Of these patients with severe COVID-19, 68% (n=52) died. Patients who got palliative care consults were of older age, had higher rates of intubation, need for vasopressors, and death.

Conclusion

There was a low utilization rate of palliative care in patients with COVID-19. Conscious utilization of palliative care is needed at the time of COVID-19.

Introduction:

As the world battles the coronavirus disease 2019 (COVID-19) pandemic, it is critical to use palliative care as an approach to ease the burden of this life-threatening illness on patients and their families. However, at this time of crisis, palliative care may be inadvertently overlooked with some potential dire consequences. In fact, the World Health Organization (WHO) has issued guidance on how to maintain essential health services during the pandemic but there was no mention of palliative care (1). In their paper on palliative care, Powell et. al highlighted the importance of palliative care in infectious disease outbreaks with high mortality and imperfect therapeutic interventions. Referring to Ebola as an example, they noted that relief of suffering becomes the main treatment option available in such situations (2). This is relevant to the COVID-19 pandemic where our lack of clear understanding of the pathophysiology and complications of the disease result in uncertainty and limited therapeutic treatments. In a 2006 report about hospice use in Taiwan during the Severe Acute Respiratory Syndrome (SARS) outbreak, it was illustrated that palliative care has the potential to be underused, especially when healthcare centers are overwhelmed (3). Today, our healthcare systems are in a similar situation, and it is crucial to assess the use of palliative care in this global fight against the current pandemic. Hence, we present a study assessing the rates of utilization of palliative care in an underserved high-risk COVID-19 patient population.

Patients and Methods***Study Design, Participants, and Data Collection***

This study is a single center retrospective analysis of all patients admitted with a confirmed diagnosis of COVID-19 via reverse transcriptase–polymerase chain reaction assay (RT-PCR) performed on nasopharyngeal swab specimens admitted between 3/1/2020 and 4/24/2020. We included patients in

both ICU and non-ICU settings. The patients were identified using a registry of all COVID-19 patients admitted to our hospital. We excluded patients who were still admitted at the time of analysis. Demographic and clinical factors including age, gender, race, and comorbidities were extracted from electronic medical records with a standardized data collection form. We defined severe COVID-19 as need for intubation, vasopressors, and/or renal replacement therapy or hemodialysis (RRT/HD). This study was approved by Institutional Review Board.

Statistical Analysis

Demographic variables were summarized using percentages for categorical variables and means for continuous variables. Categorical variables were compared using chi-square testing. Continuous variables were compared using T tests.

Results

A total of 389 patients were evaluated in our hospital and tested positive via RT-PCR for COVID-19. 122 patients were excluded as they were still admitted at the time of analysis. 25 patients with incomplete clinical data were excluded leaving a final sample of 242 patients analyzed. In the final sample of 242 patients, the mean age (+/- SD) was 66 ±14.75. Almost half of the patients were female (119) and 70% (170) were African American. Chronic medical conditions of these patients included hypertension seen in 74% (n=179), diabetes mellitus 49% (n=119) and 19% (n=46) had either COPD or asthma.

The overall mortality in our sample was 21.5% (n=52) and in 48% (n=25) of these patients, palliative care was not involved. Overall, palliative care was consulted for 17% (n=41) of patients. More than half of these consults (59% n=24) eventually elected for comfort measures and transitioned to hospice care. Meanwhile, of those patients who did not transition to hospice care, 10 died. Out of the 201 patients without a palliative consult, 12% (n=25) patients died. Among those classified as having

severe COVID-19 (needed intubation, vasopressors, and /or RRT/HD), only 31 out of 77 (40%) had palliative care consults. Of these patients with severe COVID-19, 68% (n=52) patients died.

Looking at characteristics of patients who got palliative care consults, most of them belonged to a significantly older age group. It was notable that the oxygen requirements were also significantly higher on admission among patients with palliative care consults. In addition, patients with palliative consults had higher rates of intubation, need for vasopressors, and death (see table 1).

Discussion

This retrospective study showed a relatively high overall mortality rate (21.5%/52 patients). In almost half of the deaths in our sample, palliative care was not involved. The palliative team was only consulted for 17% of all patients (n=41 patients) – a low utilization rate of this valuable resource during the pandemic. The low utilization of palliative care in the setting of COVID-19 pandemic has neither been assessed nor reported in other formal studies, and this study is one of the first.

Low utilization of palliative care services can be due to the hostile atmosphere created by the pandemic, infection control measures, and extreme pressure on services (4). Evidence has shown that growing healthcare demands in the setting of COVID-19 has overwhelmed and overburdened the capacity of U.S. hospitals (5). In that context, most hospital resources were allocated toward direct patient care with some services prioritized over others. However, provision of relief from suffering, support in complex decision making, and management of clinical uncertainty, as the foundational features of palliative care, should be essential responses to the pandemic crisis (2,6). Addressing patients' and families' sufferings, and supporting their decision making in clinical uncertainty are as important as medical management since there is still no definitive treatment for COVID-19 (7). The standard humanitarian response in this pandemic crisis should be re-imagined encompassing both saving lives and minimizing suffering (1). Palliative trained specialists deliver holistic care by ensuring

symptom management and psychological support to both patients and their families (4). Even though critical care physicians and hospitalists can render some degree of palliative services, they are already overburdened with their increased workloads (5), hence making palliative care services indeed invaluable.

Among patients classified as severe COVID-19, only 31 out of 77 (40%) had palliative care consults. This again shows the underutilization as discussed above. This also reflects the lack of opportunity to introduce hospice and comfort care services to both patients and their families/caregiver(s). All severe COVID-19 patients should have access to palliative care (8). Provision of such is an ethical imperative for those who are unlikely to survive (5). This can guide them in making end of life decisions after they and/or their families get a better understanding of the prognosis. As this study showed, palliative care consults are associated with hospice and transitioning to comfort care in more than half of the cases (59% n= 24 patients), which focuses more on the patient's comfort. This can also help redirect resources including ventilators which are currently in high demand (5, 9-10). Therefore, this is a clear advantage of fully utilizing palliative care in such circumstances.

Involvement of palliative care may come late especially when healthcare systems are overwhelmed and when patients are already intubated. In their study, Cotogni et. al showed that over one-third of patients with chronic diseases awaiting to be hospitalized in the ED needed palliative care and can be identified with an easy-to-use, non-disease-specific simplified screening tool (11). Another study done on medical intensive care unit patients showed that the use of a modified screening tool in the ED increased palliative care utilization and decreased median time to palliative consultation (12). Patients with severe COVID-19, regardless of comorbidities should automatically get palliative care consults as part of a COVID19 admission power plan. Palliative care should be integrated into triage systems. This would get palliative care to be involved early in the course and prevent the low utilization.

Limitations

As the COVID-19 pandemic continues and institutional policies change, there may be greater utilization of palliative care now, especially that the burden of COVID-19 has plateaued. Our institutional policies regarding treatment and management and including palliative care have changed over the course of the pandemic. Our study did not involve looking in depth on provider preferences or consulting patterns regarding palliative care. We also did not tackle palliative needs and impact of illness on survivors. Our findings may not be generalizable to other systems as other healthcare institutions might have a significantly higher or lesser burden of COVID-19 cases. Also, our sample population is relatively high risk with multiple comorbidities and is predominantly African American and underrepresented minorities. This may also limit generalizability. Still, this study gives a glimpse at the utilization of palliative care in an underserved population at the time of COVID-19.

Conclusion

There was a relatively low utilization rate of palliative care in patients with COVID-19. More conscious utilization of palliative care is needed at the time of COVID-19.

Figure and Table Legend

Table 1. Demographic and clinical characteristics of patients

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Characteristics	Palliative care (n=41)	no Palliative care (n=201)	p value
Age median (IQR)	74.76±10.03	64.25±14.95	<0.0001
Female gender % (n)	54(21)	50(101)	0.734
Ethnicity % (n)			0.298
African American	63(26)	72(145)	
Caucasian	22(9)	4(8)	
Hispanic	5 (2)	12(24)	
Other	10(4)	12(24)	
Comorbidities % (n)			
BMI (mean ± SD)	26.92±8.84	29.89±9.23	0.067
COPD	12(5)	12(24)	1.000
Asthma	2(1)	9(18)	0.324
Heart Failure	10(4)	15(30)	0.467
Atrial fibrillation	20(8)	8(16)	0.04
Liver cirrhosis	5(2)	3(6)	0.626
Diabetes	49(20)	49(98)	1.000
Chronic kidney disease	23(9)	17(34)	0.374
End stage renal disease on dialysis	7(3)	8(16)	1.000
Coronary artery disease	17(7)	19(38)	1.000
Hypertension	73(30)	75(151)	0.846
Obesity	34(14)	41(82)	0.485
HIV	2(1)	3(6)	1.000
History of active cancer	15(6)	10(20)	0.406
Active cancer	7(3)	2(4)	0.633
FiO2% requirement on admission	59.15±35.14	34.87±24.67	<0.0001
Serum Ferritin on admission	1848±2225	1900±3006	0.922
D-dimer on admission	7317±2800	9581±4143	0.014
CRP on admission	195±126	127±108	0.009
Procalcitonin on admission	4.33±8.71	1.64±6.53	0.142
COVID-19 treatment			
Hydroxychloroquine	81(33)	56(113)	0.003
Steroids	46(19)	18(36)	<0.0001
Tocilizumab	22(9)	6(12)	0.003
Clinical outcomes			
Inpatient death	66(27)	12(24)	<0.0001
Need for CRRT/HD	17(7)	9(18)	0.146
Need for vasopressors	61(25)	12(24)	<0.0001
Need for intubation	61(25)	14(28)	<0.0001
Hospice/withdrawal of care	59(24)	6(12)	<0.0001

Table 1. Demographic and clinical characteristics of patients