SHORT COMMUNICATION

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Palliative extubation experience in a community hospital in southern Brazil

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INTRODUCTION

Sustaining invasive mechanical ventilation may inappropriately prolong the dying process and perpetuate states worse than death in end-of-life care. Even though withdrawing the ventilator in this circumstance is a well-established practice worldwide[1], Brazilian physicians are far more likely to withhold than withdraw life-sustaining treatments[2-5].

In 2018, the Brazilian Ministry of Health enacted Resolution No. 41/2018[6], spotlighting palliative care as a high-priority public health policy. We here explore the experience of a community intensive care unit (ICU) in Brazil after implementing a local protocol for palliative extubation.

METHODS

This prospective cohort study was conducted in a non-academic 10-bed ICU inside a 100-bed public community hospital in Porto Alegre, southern Brazil, from August 2019 to July 2020. The enrollment ended in August 2020 due to team rearrangement and permutations of staff rostering during the COVID-19 pandemic.

In July 2019, the interdisciplinary ICU team developed an institutional protocol of palliative extubation based on previous literature[7-9], targeting patients on invasive mechanical ventilation with terminal illness, progressive organ failure, chronic frailty, or catastrophic neurological event. Family members were approached regarding goals of care within 24 h of ICU admission, and at least two conferences on separate days were required for the decision process. The withdrawal of mechanical ventilation was always preceded by tapering all life-sustaining interventions, including the ventilatory parameters. Opioids were used immediately before extubation to reduce respiratory distress[10]; neuromuscular blocking agents and no comfort-centered routine measures were permanently discontinued. The medical team performed the procedure only during the daytime on weekdays and documented it in full detail on the electronic medical record.

Clinical and epidemiological data of patients submitted to palliative extubation were prospectively acquired to audit compliance with the protocol and obtain performance and quality indicators for the unit. The Institutional Review Board recently approved the data publication and waived the need for informed consent. The first author also reviewed medical records in case of any missing variables. We excluded patients with a tracheostomy or who were dead during the gradual reduction of life-sustaining treatments prior to extubation. The endpoint of primary interest was the period from extubation to hospital death or discharge.

Continuous variables were reported as mean±standard deviation, median, and interquartile range, and categorical variables were represented as numbers and proportions. We plotted a Kaplan-Meier curve to illustrate the time to death. Data were analyzed using STATA version 14.2 (Stata-Corp LP, College Station, TX, USA).

RESULTS

During the 1-year study period, 18 patients underwent protocolized palliative extubation. No family member or surrogate approached by the ICU team disagreed with the procedure. All included patients had been transferred from external emergency care units or rural hospitals due to a medical condition. Sepsis was the main reason for intubation. Table 1 displays the characteristics of the study cohort.

All patients eventually died during hospitalization, although six (33.3%) were discharged alive to the ward. The time between palliative extubation and in-hospital death ranged from 10 min to 11 days, with a median of 79 h (Figure 1).

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Table 1. Characteristics of the study cohort.

Variables	n=18*
Age (years)	63.3±13.1
Male (%)	13 (72.2)
SAPS 3 (points)	76.5 (66–87)
Comorbidities (%)	
Moderate/severe COPD	2 (11.1)
Systolic heart failure	4 (22.2)
Cirrhosis	2 (11.1)
Cognitive impairment	2 (11.1)
Stroke sequelae	4 (22.2)
Metastatic cancer	4 (22.2)
End-stage renal disease	0
Reason for mechanical ventilation (%)	
Respiratory sepsis	5 (27.8)
Non-respiratory sepsis	3 (16.7)
Decompensated heart failure	2 (11.2)
Cardiac arrest	4 (22.2)
Stroke	2 (11.2)
Coma (other causes)	2 (11.2)
Palliative Performance Scale (%)	65 (30–80)
Charlson comorbidity index	6 (3–9)
Hemodynamic dysfunction at ICU admission (%)	10 (55.6)
Renal dysfunction at ICU admission (%)	10 (55.5)
Renal replacement therapy (%)	1 (5.6)
Duration on mechanical ventilation (days)**	5 (4–15)
ICU length of stay (days)***	7.5 (4–11)
Hospital length of stay (days)***	8 (4–14)
Use of opioids and/or sedatives after extubation (%)	11 (61.1)
Interruption of artificial nutrition (%)	16 (88.9)
Main surrogate decision-maker (%)	
Offspring	7 (38.9)
Spouse	5 (27.8)
Nephew/niece	3 (16.7)
Other	3 (16.7)

*Data are presented as mean±standard deviation, median (interquartile range), or n (%). **The first day on the ventilator is being considered. ***Day 0 represents the day of admission to our hospital due to inconsistent external medical records. SAPS 3: Simplified Acute Physiology Score 3; COPD: chronic obstructive pulmonary disease; ICU: intensive care unit.

No patient was educated above the high school level. A total of 13 (72.2%) decedents had no advanced care planning, thus relying on third parties to align medical treatments with likely patients' wishes and preferences. Offspring and spouses were the family members most frequently involved in those shared decisions.

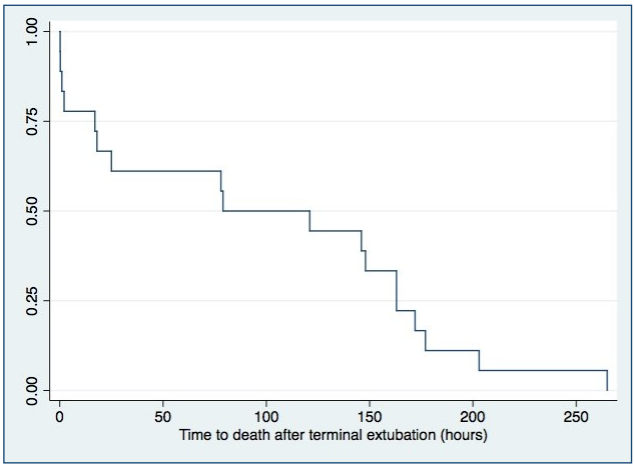

Figure 1. The Kaplan-Meier plot shows the survival time (hours) after palliative extubation of 18 patients, all of whom died in the hospital. 50% died within 79 h.

DISCUSSION

Rigorously executed, protocolized palliative extubation had no association with immediate death in this single-center cohort of 18 critically ill medical patients. Our experience is encouraging: the small, resource-limited, and non-teaching center provided culturally challenging end-of-life care to a considerable number of patients in a short time frame, despite the low prevalence of explicit advance care planning and the presumably low educational level.

Clinicians might consider removing the endotracheal tube as a strong determinant of immediate death. Compared with the previous studies[11-16], the longer survival after withdrawal of mechanical ventilation in our report likely reflects the role of gradual removal of life-support treatments rather than extubation merely in anticipation of imminent death, i.e., quite near the end of life, thus attenuating the residual effect of acutely severe illness. Previous cohorts with lower mortality[10,12,16,17] included patients who were successfully weaned from the ventilator and were probably not representative of the sicker segment of the ICU population.

Most family members would likely prefer the choice to shorten the dying process of the patients by withdrawing the ventilator[18]. In Brazil, however, palliative extubation is seldom performed[3-5]: 50.2% of Brazilian intensivists admit fear of litigation, although over 75% claim to have received specific palliative care training[19]. A survey[20] collected responses from 105 ICU physicians in Brazil in

2012 regarding a case vignette of a critically ill patient with post-cardiac arrest encephalopathy and sepsis: none would perform palliative extubation.

We failed to capture the exact moment when providers decided to recommend palliative extubation to patients, but the median duration of mechanical ventilation in our cohort is comparable to contemporary reports[3,10,17,21]. We were also unable to assess death cases after withdrawing vasopressors, renal replacement therapy, and other life-sustaining interventions while preparing for palliative extubation. We neither addressed the satisfaction of families nor the confidence and perceptions of the healthcare team. Palliative weaning without extubation was not a local practice in end-of-life care. No included patient had been intubated in the community hospital, which denotes the inclination of the hospital staff toward avoiding potentially disproportionate interventions.

Our findings might overcome misperceptions and mitigate potential moral conflicts among healthcare professionals. Professional competency and acceptance matter because they directly affect how patients will die. By integrating palliative care principles into daily care practice, this feasible initiative underscores how palliative extubation could be more frequently approached in the Brazilian health system to promote more humanized and affordable care.

AUTHORS' CONTRIBUTIONS

ACPA: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **JPA:** Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – review & editing.

REFERENCES

1. Efstathiou N, Vanderspank-Wright B, Vandyk A, Al-Janabi M, Daham Z, Sarti A, et al. Terminal withdrawal of mechanical ventilation in adult intensive care units: a systematic review and narrative synthesis of perceptions, experiences and practices. Palliat Med. 2020;34(9):1140-64. https://doi.org/10.1177/0269216320935002
2. Yaguchi A, Truog RD, Curtis JR, Luce JM, Levy MM, Mélot C, et al. International differences in end-of-life attitudes in the intensive care unit: results of a survey. Arch Intern Med. 2005;165(17):1970-5. https://doi.org/10.1001/archinte.165.17.1970
3. Rebelatto G, Moritz RD. Palliative extubation: case analysis in an intensive care unit. O Mundo da Saúde. 2017;41(3):385-94. https://doi.org/10.15343/0104-7809.20174103385394
4. Bitencourt AG, Dantas MP, Neves FB, Almeida Ade M, Melo RM, Albuquerque LC, et al. Therapeutic limitation conducts in intensive care unit patients. Rev Bras Ter Intensiva. 2007;19(2):137-43. PMID: 25310771
5. Furtado RA, Tonial CT, Costa CAD, Andrades GRH, Crestani F, Bruno F, et al. End-of-life practices in patients admitted to pediatric intensive care units in Brazil: a retrospective study. J Pediatr (Rio J). 2021;97(5):525-30. https://doi.org/10.1016/j.jped.2020.10.017
6. Brazilian Ministry of Health. Resolution No. 41/2018 (in Portuguese). 2023 [cited on Feb 2023]. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/cit/2018/res0041_23_11_2018.html
7. Coelho CBT, Yankaskas JR. New concepts in palliative care in the intensive care unit. Rev Bras Ter Intensiva. 2017;29(2):222-30. https://doi.org/10.5935/0103-507X.20170031
8. Downar J, Delaney JW, Hawryluck L, Kenny L. Guidelines for the withdrawal of life-sustaining measures. Intensive Care Med. 2016;42(6):1003-17. https://doi.org/10.1007/s00134-016-4330-7
9. Coradazzi AL, Inhaia CLS, Santana MTEA, Sala AD, Ricardo CP, Suadicani CO, et al. Palliative withdrawal ventilation: why, when and how to do it? Hos Pal Med Int Jnl. 2019;3(1):10-4. https://doi.org/10.15406/hpmij.2019.03.00141
10. Robert R, Gouge A, Kentish-Barnes N, Cottereau A, Giraudeau B, Adda M, et al. Terminal weaning or immediate extubation for withdrawing mechanical ventilation in critically ill patients (the ARREVE observational study). Intensive Care Med. 2017;43(12):1793-807. https://doi.org/10.1007/s00134-017-4891-0
11. Huynh TN, Walling AM, Le TX, Kleerup EC, Liu H, Wenger NS. Factors associated with palliative withdrawal of mechanical ventilation and time to death after withdrawal. J Palliat Med. 2013;16(11):1368-74. https://doi.org/10.1089/jpm.2013.0142
12. Cooke CR, Hotchkin DL, Engelberg RA, Rubinson L, Curtis JR. Predictors of time to death after terminal withdrawal of mechanical ventilation in the ICU. Chest. 2010;138(2):289-97. https://doi.org/10.1378/chest.10-0289
13. Chan JD, Treece PD, Engelberg RA, Crowley L, Rubenfeld GD, Steinberg KP, et al. Narcotic and benzodiazepine use after withdrawal of life support: association with time to death? Chest. 2004;126(1):286-93. https://doi.org/10.1016/S0012-3692(15)32925-1
14. Epker JL, Bakker J, Lingsma HF, Kompanje EJ. An observational study on a protocol for withdrawal of life-sustaining measures on two non-academic intensive care units in the Netherlands: few signs of distress, no suffering? J Pain Symptom Manage. 2015;50(5):676-84. https://doi.org/10.1016/j.jpainsymman.2015.05.017
15. Thellier D, Delannoy PY, Robineau O, Meybeck A, Boussekey N, Chiche A, et al. Comparison of terminal extubation and terminal weaning as mechanical ventilation withdrawal in ICU patients. Minerva Anestesiol. 2017;83(4):375-82. https://doi.org/10.23736/S0375-9393.16.11468-3
16. O'Mahony S, McHugh M, Zallman L, Selwyn P. Ventilator withdrawal: procedures and outcomes. Report of a collaboration between a critical care division and a palliative care service. J Pain Symptom Manage. 2003;26(4):954-61. https://doi.org/10.1016/s0885-3924(03)00333-6

17. Lacerda FH, Checoli PG, Silva CMDD, Brandão CE, Forte DN, Besen BAMP. Mechanical ventilation withdrawal as a palliative procedure in a Brazilian intensive care unit. Rev Bras Ter Intensiva. 2020;32(4):528-34. https://doi.org/10.5935/0103-507X.20200090

18. Fumis RR, Deheinzelin D. Respiratory support withdrawal in intensive care units: families, physicians and nurses views on two hypothetical clinical scenarios. Crit Care. 2010;14(6):R235. https://doi.org/10.1186/cc9390

19. Ramos JGR, Vieira RD, Tourinho FC, Ismael A, Ribeiro DC, Medeiro HJ, et al. Withholding and withdrawal of treatments: differences in perceptions between intensivists, oncologists, and prosecutors in Brazil. J Palliat Med. 2019;22(9):1099-105. https://doi.org/10.1089/jpm.2018.0554

20. Forte DN, Vincent JL, Velasco IT, Park M. Association between education in EOL care and variability in EOL practice: a survey of ICU physicians. Intensive Care Med. 2012;38(3):404-12. https://doi.org/10.1007/s00134-011-2400-4

21. Kok VC. Compassionate extubation for a peaceful death in the setting of a community hospital: a case-series study. Clin Interv Aging. 2015;10:679-85. https://doi.org/10.2147/CIA.S82760