

# Risk factors for mechanical ventilation in cancer patients

## Opinion

Classically, admission in intensive care units (ICUs) has been restricted for cancer patients.<sup>1</sup> However, acceptance of this type of patients has increased in the latest years,<sup>2</sup> at least in part because of the expansion of oncological ICU in specialized hospitals. Critically ill cancer patients can develop several complications and pathophysiological disturbances allowing acute respiratory failure (ARF) such as lung infiltrate pulmonary and non-pulmonary sepsis, postoperative status, as well as cardiovascular and non-septic pulmonary disorders<sup>3</sup> ARF represent 37-64% of all ICU admission<sup>4-7</sup> and it is associated with a hospital mortality rate of 49-56% in this population.<sup>4,8</sup>

Mechanical ventilation (MV) is a life-support method commonly used in the management of critically ill cancer patients. A recent prospective study reported an incidence of MV in cancer patients about 36%.<sup>9</sup> This frequency increases up to 50% when pulmonary opacity on chest X-ray is observed.<sup>4</sup> Cancer patients represent nearly 37% of all ventilated cases,<sup>10</sup> and 57% of them have a ventilation time above 21 days whether MV is prolonged more than 7 days.<sup>11</sup> MV is associated with a high ICU and hospital mortality in cancer and non-cancer patients<sup>10-14</sup> and quality of life might be importantly affected in post-ICU setting.<sup>15</sup> In critically ill cancer patients, MV has been recognized as an independent risk factor for hospital mortality.<sup>8,16,17</sup> In addition, one-year survival is as low as 14% for those patients with prolonged MV.<sup>11</sup>

Recently, Martos-Benítez et al. conducted a retrospective cohort study with 691 cancer patients admitted to an oncological ICU of a specialized institution. Authors reported a rate of severe ARF requiring invasive MV (SARF-MV) of 15.8%. Brain tumor (odds ratio [OR] 14.5; 95% CI 3.9-54.8; p<0.0001), stage IV cancer (OR 3.5; 95% CI 1.3-9.5; p=0.016), sepsis upon ICU admission (OR 2.3; 95% CI 1.1-4.6; p=0.020) and APACHE II score $\geq$ 20 points (OR 5.4; 95% CI 1.9-15.1; p=0.001) were independently associated with SARF-MV in multivariate logistic regression analysis.<sup>3</sup> This is the first study designed to determine the risk factors for SARF-MV in critically ill cancer patients. So that SARF would be reduced by the control of these risk factors, which may have an impact on outcomes.

## Acknowledgments

None.

## Conflicts of interest

Author declares that there is no conflict of interest.

## References

1. Kostakou E, Rovina N, Kyriakopoulou M, et al. Critically ill cancer patient in intensive care unit: issues that arise. *J Crit Care*. 2014;29(5):817-822.
2. Azoulay E, Soares M, Darmon M, et al. Intensive care of the cancer patient: recent achievements and remaining challenges. *Ann Intensive Care*. 2011;1(1): 5.
3. Martos-Benítez FD, Gutiérrez-Noyola A, Badal M. Risk factors and outcomes of severe acute respiratory failure requiring invasive mechanical ventilation in cancer patients: A retrospective cohort study. *Med Intensiva*. 2018;42(6):354-362.
4. Yoo H, Young Suh G, Jeong BH, et al. Etiologies, diagnostic strategies, and outcomes of diffuse pulmonary infiltrates causing acute respiratory failure in cancer patients: a retrospective observational study. *Crit Care*. 2013;17(4):R150.
5. Aygencel G, Turkoglu M, Turkoz Sucak G, et al. Prognostic factors in critically ill cancer patients admitted to the intensive care unit. *J Crit Care*. 2014;29(4):618-626.
6. Ostermann M, Raimundo M, Williams A, et al. Retrospective analysis of outcome of women with breast or gynaecological cancer in the intensive care unit. *JRSM Short Rep*. 2013;4(1):2.
7. Mânicá Müller A, Basso Gazzana M, Rossato Silva D. Outcomes for patients with lung cancer admitted to intensive care units. *Rev Bras Ter Intensiva*. 2013;25(1):12-16.
8. Anisoglu S, Asteriou C, Barbetakis N, et al. Outcome of lung cancer patients admitted to the intensive care unit with acute respiratory failure. *Hippokratia*. 2013;17(1):60-63.
9. Almeida ICT, Soares M, Bozza FA, et al. The Impact of Acute Brain Dysfunction in the Outcomes of Mechanically Ventilated Cancer Patients. *PLoS ONE*. 2014;9(1):e85332.
10. Azevedo LC, Caruso P, Silva UV, et al. Outcomes for patients with cancer admitted to the ICU requiring ventilatory support: results from a prospective multicenter study. *Chest*. 2014;146: 257-266.
11. Shih ChY, Hung MCh, Lu HM, et al. Incidence, life expectancy and prognostic factors in cancer patients under prolonged mechanical ventilation: a nationwide analysis of 5,138 cases during 1998-2007. *Crit Care*. 2013;17(4):R144.
12. Azevedo LCP, Park M, Salluh JIF, et al. Clinical outcomes of patients requiring ventilatory support in Brazilian intensive care units: a multicenter, prospective, cohort study. *Crit Care*. 2013;17(2):R63.
13. Villar J, Blanco J, Añón JM, et al. The ALIEN study: incidence and outcome of acute respiratory distress syndrome in the era of lung protective ventilation. *Intensive Care Med*. 2011;37(12):1932-1941.
14. Franca SA, Toufen C Jr, Hovnanian AL, et al. The epidemiology of acute respiratory failure in hospitalized patients: a Brazilian prospective cohort study. *J Crit Care*. 2011;26(3):330.

Volume 10 Issue 6 - 2018

Frank Daniel Martos-Benítez

Department/Institution of Intensive Care Unit, Hermanos Ameijeiras Hospital, Cuba

**Correspondence:** Frank Daniel Martos Benítez, Department/Institution of Intensive Care Unit, Hermanos Ameijeiras Hospital, 367A Fuentes Street, Guanabacoa, Havana, Cuba, Tel +53 53925706, Email fdmertos@infomed.sld.cu

**Received:** October 07, 2017 | **Published:** December 17, 2018

15. Herridge MS, Tansey CM, Matté A, et al. Functional disability 5 years after acute respiratory distress syndrome. *N Engl J Med.* 2011;364(14):1293–1304.
16. Soares M, Caruso P, Silva E, et al. Characteristics and outcomes of patients with cancer requiring admission to intensive care units: a prospective multicenter study. *Crit Care Med.* 2010;38(1):9–15.
17. Singh Bajwa SJ, Kaur Bajwa S, Kaur J. Care of Terminally Ill Cancer Patients: An Intensivist's Dilemma. *Indian J Palliat Care.* 2010;16(2):83–89.