



ORIGINAL

Risk factors and outcomes of severe acute respiratory failure requiring invasive mechanical ventilation in cancer patients: A retrospective cohort study



F.D. Martos-Benítez*, A. Gutiérrez-Noyola, M. Badal, N.A. Dietrich

Department of Intensive Care, Institute of Oncology and Radiobiology, 29 Street, Vedado, Havana, Cuba

Received 17 June 2017; accepted 8 August 2017

KEYWORDS

Acute respiratory failure;
APACHE;
Cancer;
Critically ill cancer patient;
Mortality;
Mechanical ventilation;
Sepsis

Abstract

Objectives: To determine the risk factors for severe acute respiratory failure requiring invasive mechanical ventilation (SARF-MV) and its effect upon clinical outcomes in critically ill cancer patients.

Design: A retrospective cohort study was carried out.

Setting: A 12-bed oncological intensive care unit (ICU) from January 2014 to December 2015.

Patients: A total of 878 consecutive cancer patients were included. Patients with an ICU stay of ≤ 1 day were excluded. The final sample size was 691 patients.

Interventions: None.

Variables: Clinical variables at ICU admission were extracted from the medical records. The primary outcome was SARF-MV. We also measured ICU and hospital mortality, as well as length of stay.

Results: The SARF-MV rate was 15.8%. The multivariate analysis identified brain tumour (OR 14.54; 95%CI 3.86–54.77; $p < 0.0001$), stage IV cancer (OR 3.47; 95%CI 1.26–9.54; $p = 0.016$), sepsis upon admission (OR 2.28; 95%CI 1.14–4.56; $p = 0.020$) and an APACHE II score ≥ 20 points (OR 5.38; 95%CI 1.92–15.05; $p = 0.001$) as being independently associated to SARF-MV. Compared with the patients without SARF-MV, those with SARF-MV had a prolonged length of ICU stay ($p < 0.0001$), a lower ICU survival rate ($p < 0.0001$) and a lower hospital survival rate ($p < 0.0001$).
Conclusions: A number of clinical factors are related to SARF-MV. In this regard, SARF-MV is a powerful factor independently correlated to poor outcomes. Future studies should investigate means for preventing SARF-MV in critically ill cancer patients, which may have an impact upon outcomes.

© 2017 Elsevier España, S.L.U. y SEMICYUC. All rights reserved.

* Corresponding author.

E-mail address: fdmartos@infomed.sld.cu (F.D. Martos-Benítez).

PALABRAS CLAVE

Insuficiencia respiratoria aguda;
APACHE;
Cáncer;
Paciente oncológico crítico;
Mortalidad;
Ventilación mecánica;
Sepsis

Factores de riesgo y resultados de la insuficiencia respiratoria grave que requiere ventilación mecánica invasiva en pacientes oncológicos: un estudio de cohortes retrospectivo

Resumen

Objetivos: Determinar los factores de riesgo para insuficiencia respiratoria grave que requiere ventilación mecánica (IRG-VM) y sus efectos sobre los resultados clínicos en pacientes críticos con cáncer.

Diseño: Estudio de cohorte retrospectivo.

Contexto: Desde enero de 2014 a diciembre de 2015 en una unidad de cuidados intensivos (UCI) oncológicos de 12 camas.

Pacientes: Se incluyeron consecutivamente 878 pacientes. Se excluyeron aquellos con una estancia en UCI \leq un día. Finalmente la muestra fue de 691.

Intervenciones: Ninguna.

Variables: De los registros médicos se extrajeron las variables clínicas a la admisión en UCI. La variable de respuesta primaria fue la IRG-VM. También se analizó la mortalidad y estancia en UCI/hospitalaria.

Resultados: La tasa de IRG-VM fue del 15,8%. En el análisis multivariado el tumor cerebral (OR 14,54; IC 95% 3,86-54,77; $p < 0,0001$), la etapa IV del cáncer (OR 3,47; IC 95% 1,26-9,54; $p = 0,016$), la sepsis (OR 2,28; IC 95% 1,14-4,56; $p = 0,020$) y la escala APACHE II ≥ 20 puntos (OR 5,38; IC 95% 1,92-15,05; $p = 0,001$) fueron factores de riesgo independientes de IRG-VM. La IRG-VM se asoció con una mayor estancia en la UCI ($p < 0,0001$), así como con una menor tasa de supervivencia en UCI ($p < 0,0001$) y hospitalaria ($p < 0,0001$).

Conclusiones: Algunos factores clínicos se relacionan con la IRG-VM. Este trastorno es un factor que se relaciona poderosamente con un peor pronóstico. Se requieren estudios futuros que investiguen las formas de prevención de la IRG-VM en los pacientes oncológicos críticos, lo cual podría tener un impacto en los resultados.

© 2017 Elsevier España, S.L.U. y SEMICYUC. Todos los derechos reservados.

Introduction

Acute respiratory failure (ARF) is a frequent disorder in cancer patients, commonly caused by several conditions including local effect of tumour, pulmonary infiltrates, pneumonia, acute respiratory distress syndrome and congestive heart failure. Supplemental oxygen and treatment of the underlying disorder is the mainstay of treatment for ARF, but severe cases require ventilatory support. Indeed, the need of this treatment modality is one of most frequent reasons for admission in the intensive care unit (ICU) for critically ill cancer patients.¹⁻³

Mechanical ventilation (MV) is a primary method of organic function support in critically ill cancer patients treated in ICU, usually indicating a severe ARF (SARF). However, despite significant advances in ventilatory support and cancer management, MV remains associated with a high ICU, hospital and long-term mortality rate.^{4,5} In addition, the need of MV because of postoperative respiratory failure in operated cancer patients has been reported as high as 37%,⁶ which is associated with unfavourable outcomes as well.^{6,7}

Although some previous studies have reported an association between SARF and VM with mortality in critically ill cancer patients, this relation is not clear because of methodological designs, participants' characteristics and limitations of the studies. Conversely, the risk factors for SARF have not been consistently investigated in this type of patients. The study was aimed: 1) to identify the risk factors for severe acute respiratory failure requiring invasive

mechanical ventilation (SARF-MV); and 2) to determine the effects of SARF-MV on clinical outcomes in cancer patients admitted in an oncological ICU.

Patients and methods**Design and setting**

This was a retrospective cohort study conducted in the oncological ICU of the Institute of Oncology and Radiobiology (IOR). This is a 220-bed, university-affiliated, tertiary care referral centre for cancer patients in Havana, Cuba. The ICU has 12 beds and provides care for about 500 medical and surgical cancer patients per year. Data source was the prospective database of the ICU and hospital records (January 2014–December 2015). The study was approved by the Scientific Council and the Ethics Committee for Scientific Research of the IOR. Informed consent was waived because of the retrospective nature of the study. It was conducted in accordance with the Declaration of Helsinki.

Participants

Over the study period, a total of 878 consecutive cancer patients were included. Patients with a length of ICU stay ≤ 1 day were excluded (Fig. 1).

For those patients who were admitted more than once to the ICU during the same hospitalization, only the first

Download English Version:

<https://daneshyari.com/en/article/8695815>

Download Persian Version:

<https://daneshyari.com/article/8695815>

[Daneshyari.com](https://daneshyari.com)