medicina intensiva

ORIGINAL

Analysis of readmission rates to the intensive care unit after implementation of a rapid response team in a University Hospital

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Abstract

Objectives: To compare readmission rates to the intensive care unit (ICU) before and after the implementation of a rapid response team (RRT), and to identify risk factors for readmission.

Design: A quasi-experimental before–after study was carried out.

Setting: A University Hospital.

Patients: All patients discharged from the ICU from January to December 2008 (control group) and from January 2010 to December 2012 (intervention group).

Intervention: Implementation of an RRT.

Main variables of interest: The data included demographic parameters, diagnoses upon admission, ICU readmission, APACHE II, SOFA, and TISS 28 scores, and routine daily assessment by an RRT of patients discharged from the ICU.

Results: During the study interval, 380 patients were analyzed in the period prior to the implementation of the RRT and 1361 after implementation. There was a tendency toward decreased readmission rates one year after RRT implementation. The APACHE II score and SOFA score at ICU discharge were independent factors associated to readmission, as well as clinical referral to the ICU.

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Conclusions: The RRT intervention resulted in a sustained decrease in readmission rates one year after implementation of this service. The use of a specialized team in health institutions can be recommended for ICU survivors.
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El análisis de las tasas de reingreso en la unidad de cuidados intensivos después de la puesta en práctica de un equipo de respuesta rápida en un hospital universitario

Resumen
Objetivos: Comparar las tasas de reingreso en la UCI antes y después de la implementación de un equipo de respuesta rápida (RRT) e identificar los factores de riesgo para la readmisión.
Diseño: Estudio cuasiexperimental before-after.
Lugar: Hospital universitario.
Pacientes: Todos los pacientes que fueron dados de alta de la UCI de enero a diciembre de 2008 (grupo control) y de enero 2010 a diciembre 2012 (grupo intervención).
Intervención: Implementación de un RRT.
Principales variables de interés: Los datos incluidos demográfica, los diagnósticos de ingreso, readmisión UCI, APACHE II, SOFA y TISS 28 puntuación y de evaluación de los pacientes dados de alta de la UCI por un TSR.
Resultados: Durante el período de estudio, 380 pacientes fueron analizados en el período anterior a la implementación de la RRT y 1,361 después de la implementación. Hubo una tendencia a disminuir las tasas de reingreso después de un año de la implementación de un RRT. APACHE II y SOFA de alta de la UCI fueron factores independientes asociados a la readmisión, así como lo tipo de paciente médico.
Conclusiones: La intervención del RRT resultó en una reducción sostenida de las tasas de reingreso un año después de la implementación de este servicio. El uso de un equipo especializado en instituciones de salud puede ser recomendado para los pacientes supervivientes de la UCI.
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Introduction

Despite the great advances in artificial support systems for organ dysfunction and failure, the resources available for health are limited. In this scenario the management of health care quality and optimization of available resources are essential factors for maintaining good health systems functioning.[1]

In order to evaluate health care quality in the field of intensive care, readmission is an indicator of great importance, since it applies both to patient safety and optimization of health resources.[2] Identifying patients who have a higher risk for readmission and indicating the follow-up of a specialized team in the intensive care post-discharge period are useful tools in this context.[3]

The risk factors most often identified in the literature for readmission to the ICU are respiratory and cardiovascular dysfunctions at the time of discharge. The most frequent readmission diagnoses are hypoxic respiratory failure, inadequate bronchial toilet, gastrointestinal bleeding, neurological disorders, and sepsis.[4]

Patient follow-up by a specialized team in the post intensive care period in order to prevent readmissions resulted in reduced readmission rates in pediatric patients[3]; however, the results are conflicting for adult patients.[5] An early proactive detection of severity called ''ICU without walls'' was able to decrease mortality in adult patients.[6] Identifying the benefits of implementing a rapid response team and defining the scope of its activities in health institutions are critical factors for optimizing the cost-effective performance of this specialized team.

The aim of this study was to compare readmission rates in the ICU before and after the implementation of a Rapid Response Team and identify risk factors for readmission in these patients.

Patients and methods

This quasi-experimental before–after study was conducted from January to December 2008 and January 2010 to December 2012 (before and after the implementation of the RRT, respectively) in a University Hospital. The study was conducted in a public university hospital with 330 beds, situated in the south of Brazil, serving a geographic region with an estimated population of 1,790,000 inhabitants. The ICU for adults consists of 20 beds, and had an occupancy rate above 95% throughout the study period. All consecutive patients who were discharged from the ICU during the study periods were included. Patients discharged in the first period of the study (January to December 2008) were considered as the control group. Patients discharged in the second period of