

POSTER PRESENTATION

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Risk factors for death in chronic critical illness

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From ESICM LIVES 2015

Berlin, Germany. 3-7 October 2015

Introduction

As early recognition, resuscitation and technological advancement in the treatment of critically ill patients have improved, efforts to understand patient outcomes after an acute period of illness are being undertaken. While it has been noted that one-year mortality among survivors of critical illness is extremely high, awareness is increasing regarding patients who, despite survival, remain “chronically critically ill”. This is important considering that patients who have short-term survival after ICU discharge have poor quality of life leading to death.

Objectives

To determine among a cohort of ICU patients who survived >30 days factors that are associated with survival less than one year.

Methods

We conducted a longitudinal, single center, retrospective cohort study of patients admitted to an intensive care unit at Beth Israel Deaconess Medical Center using the MIMIC database. Patients were included if they survived greater than 30 days post discharge and excluded if they were known to have advanced cancer. The 1-year survivors and non-survivors were compared using the Wilcoxon rank sum test for continuous variables, and the Fisher’s exact test for categorical variables. All significant variables were included in the multivariable logistic regression model to predict 1-year survival in the study cohort.

Results

17,478 patients met the inclusion criteria and were included in the study. 15,449 (88.39%) survived greater than 365 days, whereas 2,029 (11.61%) did not. Variables associated with decreased one-year survival include: age, hospital length of stay, number of hospital admissions

post ICU discharge, duration of mechanical ventilation and vasopressor use, a diagnosis of sepsis, history of congestive heart failure (CHF), end-stage renal disease (ESRD), dementia, cirrhosis, cerebro-vascular accident (CVA), chronic obstructive pulmonary disease (COPD), and the need for renal replacement therapy (RRT) or tracheostomy. These results were true for both univariate and multivariate analysis. The following interaction terms were found to be significant: Age*cirrhosis, Age*COPD, Difference in SOFA day₃-day₁*sepsis, duration of mechanical ventilation*duration of vasopressor use, duration of mechanical ventilation*cirrhosis, duration of mechanical ventilation*tracheostomy, duration of vasopressor use*cirrhosis, duration of vasopressor use*tracheostomy, ESRD*CHF, RRT*HTN, RRT*sepsis.

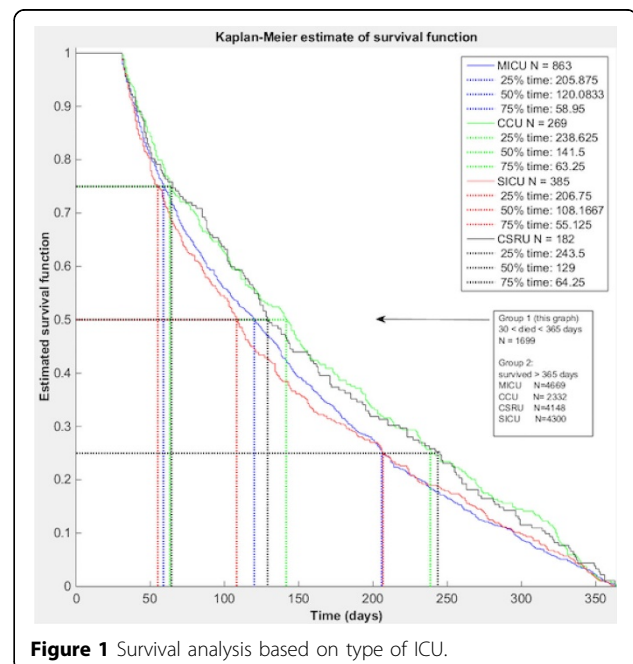


Figure 1 Survival analysis based on type of ICU.

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Table 1. Comparison based on length of survival

	30<Survival<365 n = 2029 (11.61%)	Survival>365 n = 15449 (88.39%)	P-value		30<Survival<365 n = 2029 (11.61%)	Survival>365 n = 15449 (88.39%)	P-value
Age, years	72.63+14.19	59.83+17.75	0.000	Hypertension	1014 (49.98)	7774 (50.32)	0.776
Congestive Heart Failure	927 (45.69)	3478 (22.51)	0.000	Diabetes	572 (28.19)	3663 (23.71)	0.132
Dementia	190 (9.36)	446 (2.89)	0.000	ICU LOS, days	2.86 [4.76]	1.99[2.48]	0.000
Cirrhosis	157 (7.74)	739 (4.78)	0.000	Post-discharge Hospital Admissions	1.21+0.58	1.06+0.28	0.000
Cerebrovascular Accident	303 (14.93)	1720 (11.13)	0.000	SOFA Day 3-Day 1	1.65	1.25	0.000
COPD	554 (27.3)	2575 (16.67)	0.000	Duration of Mechanical Ventilation, days	3.73 [12.34]	0.84 [2.29]	0.000
ESRD	65 (3.2)	132 (0.85)	0.000	Duration of Vasopressor Use, days	1.48 [5.19]	0.77 [1.5]	0.000
Obesity	252 (12.42)	3135 (20.29)	0.000	Renal Replacement Therapy	147 (8.03)	275 (1.99)	0.000
Sepsis	925 (45.59)	2904 (18.8)	0.000	Acute Kidney Injury	366 (18.26)	950 (6.33)	0.000

Conclusions

Among critically patients who survive greater than 30 days post discharge, many survive for greater than one year. Factors associated with decreased one-year survival include age, length of stay, number of post-discharge admissions, and numerous co-morbid conditions.

Grant Acknowledgment

The Laboratory of Computational Physiology receives research funding from the National Institute of Health through Grant R01 EB001659 and Philips.

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Published: 1 October 2015

doi:10.1186/2197-425X-3-S1-A449

Cite this article as: Lokhandwala *et al.*: Risk factors for death in chronic critical illness. *Intensive Care Medicine Experimental* 2015 **3**(Suppl 1):A449.

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