Predictors and Outcome of Prolonged Stay in the Respiratory Intensive Care Units at Ain Shams University Hospitals

Thesis

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بسم الله الرحمن الرحيم
﴿ قالوا سبحانك لا علم لنا الا ما علمتنا
إنك انت العليم الحكيم ﴾
صدق الله العظيم
الآيه(32) سوره البقره

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CONTENTS

LIST OF ABBREVIATIONS

AAMC	The Association for American Medical Colleges
ABG	Arterial blood gases
APACHE II	Acute Physiology and Chronic Health Evaluation II
ARDS	Adult respiratory distress syndrome
ARF	Acute respiratory failure
ASUSH	Ain Shams University Specialized Hospitals
CUSP	The Comprehensive Unit-Based Safety Program
CXR	Chest X-ray
DIAAT	Delayed initial appropriate antibiotic therapy
DKA	Diabetic ketoacidosis
DVT	Deep venous thrombosis
ECMO	Extracorporeal membrane oxygenator
E-CUSP	Electronic Comprehensive Unit-Based Safety Program
EN	Enteral nutrition
ET	Endotracheal tube
FiO2	the fraction of inspired oxygen
HDU	High Dependency Unit
HFNC	High flow nasal cannula

ICU	intensive care unit
ICU-AW	ICU-acquired weakness
IE ratio	inspiratory to expiratory ratio
ILD	Interstitial lung disease
LOS	Length of stay
M.B.B.CH	Bachelor of Medicine, Bachelor of Surgery
MV	Mechanical Ventilation
NES	Neuromuscular electrical stimulation
NIV	Non-invasive ventilation
OHVs	Obese Hypoventilation Syndrome
PaCO2	Partial Pressure of Carbon Dioxide in Arterial Blood
PaO2	Partial Pressure of Oxygen in Arterial Blood
PaO2/FiO2	The ratio of arterial oxygen tension to fraction of inspired oxygen
PEEP	positive end-expiratory pressure
PICS	Post Intensive Care Syndrome
PMV	Prolonged mechanical ventilation
PN	Parenteral nutrition
PTSD	Post-Traumatic Stress Disorder
REE	Resting energy expenditure

RF	respiratory failure
RICU	Respiratory ICU
SpO2	oxygen saturation
UTI	urinary tract infection
VA	veno-arterial
VAP	Ventilator associated pneumonia
VS	Versus
VV	veno-venous

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Long stay in the intensive care unit (ICU) is associated with high costs and burden on patients and patients' families and in turn affects society at large. The cost of caring for patients in ICUs in the United States has been estimated to account for 1% to 2% of the gross national product and 15% to 20% of US hospital costs representing 13% of total US healthcare costs. ***(Bardou M et al 2015)***

An ICU stay of 15 days is used to define prolonged ICU stay. Furthermore, the prolonged stay of 30 days or more is considered as a very long stay. The mortality of patients with ICU admissions lasting 16 days or longer was estimated to be nearly 50%. ***(Mahesh B et al 2012)***

The length of stay in the ICU is exacerbated by institutional, medical, social, and psychological factors. ***(Maruyama T et al 2013)***

Implementation of comprehensive unit safety programs (CUSPs) involving nurses, doctors and administrators checklists at a local unit level reduced ICU stay. ***(Berenholtz S 2014)***

Effective communication is a key factor to success in ICU. Doctor to nurses' relationship and consultants to residents' relationship have a great impact on the work environment and finally the patients' outcome. ***(Gordon M et al 2011)***

The family satisfaction also is a good measure for the ICU team performance and should be evaluated regularly.it is affected sometimes by the fate of the patients and length of stay. ***(Harvey M 2010)***

Co-management with other specialties charged with managing the patients medically resulted in a reduced length of ICU stay significantly. The patients should receive the best medical care and the case should be evaluated by specialties ‘consultants. ***(Hinami K, et al 2010)***

Long work hours are a time-honored tradition in most residency programs. Recent studies, suggest that sleep loss and fatigue result in significant neurobehavioral impairments even in healthy young adults. This cognitive impairment jeopardizes the quality of patients care especially critically ill patients in ICU and may expose the hospital or educational entity to litigation. ***(Langevoort G et al 2011)***

The use of resident physicians to provide relatively inexpensive medical coverage has become an important economical factor for teaching hospitals all over the world. The liability of diagnostic errors is much less with experienced staff. For instance, the absence of regular bedside rounds by senior intensivists was