

STUDY OF THE ROLE OF DIFFERENT SEVERITY SCORES IN RESPIRATORY INTENSIVE CARE

Thesis

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Introduction and Aim of the Work

INTRODUCTION

It is usually believed that patients with acute respiratory failure associated with chronic obstructive pulmonary disease have poor prognosis. In addition, mortality was higher in these patients (*Groenewegen et al., 2003*).

The ability to accurately adjust for the severity of illness in outcome studies of critically ill patients is essential (*Gunning & Rowan, 1999*).

A number of different systems have been proposed, each having its own strengths and weaknesses (*Knaus et al. 1985*).

Multiple organ failure is a leading cause of morbidity and mortality in critically ill patients. As such, serial measurements of the incidence and severity of organ failure during the ICU stay has been used to predict the outcomes of critical illness (*Boots et al., 2005*).

In 1985, the Acute Physiology and Chronic Health Evaluation (APACHE II) (AII) system was introduced-based on data from 5815 ICU admissions. AII is widely implemented owing to ease of score calculation, accuracy, and utility. Among the major modifications in the APACHE III (AIII), introduced in 1991, include a much larger database, extended disease categories, and increased weighing of acute physiologic variables with decreased weighing of chronic illness. As estimated, AIII more accurately predicts mortality with 90% than AII (85%) (*Knaus et al., 1991*).

The Sequential Organ Failure Assessment (SOFA) score is a scoring system to determine the extent of person's organ functions or rate of failure (*Ferreira et al., 2001*).

The Simplified Acute Physiology Score II (SAPS II) is a standardized and internationally accepted system to assess the

severity and prognosis of patients hospitalized in ICU (*Le Gall et al., 1993*).

Aim of the Work

This study aims at evaluating the ability of different scoring systems to predict the patient outcome in the respiratory intensive care units.

List of Abbreviations

AIDS	: Acquired Immune Deficiency Syndrome
AIS	: Abbreviated injury score
APACHE	: Acute physiology and chronic health evaluation
APS	: Acute physiology score
ARDS	: Acute respiratory distress syndrome
ARF	: Acute respiratory failure
ASA	: American Society of Anesthesiologists
AUC	: Area under the curve
BTS	: British Thoracic Society
BUN	: Blood urea nitrogen
CAP	: Community acquired pneumonia
CHF	: Congestive heart failure
CNS	: Central Nervous System
COPD	: Chronic obstructive pulmonary disease
CP	: Child–Pugh
CRP	: C-reactive protein

CURB-65	: Confusion, elevated blood urea nitrogen, elevated respiratory rate, low systolic or diastolic blood pressure (BP), and age over 65 years
CVP	: Central venous pressure
DBP	: Diastolic blood pressure
df	: Degrees of freedom
DM	: Diabetes mellitus
ECG	: Electrocardiogram
Ei	: Expected frequency
ESS	: Early Septic Shock
FDA	: Food and Drug Administration
FiO ₂	: Fraction of inspired oxygen
FN	: False negative
FP	: False positive
GCS	: Glasgow Coma Scale
GOCA	: Gas exchange, Organ failure, Cause, and Associated disease

HAP	: Hospital-acquired pneumonia
HCO ₃	: Bicarbonate
Hct	: Heamatocrit
HIV	: Human immunodeficiency virus
H-L	: Hosmer-Lemeshow
HR	: Heart rate
HS	: Highly significant
ICU	: Intensive care unit
INR	: International Normalization Ratio
IPF	: Interstitial pulmonary disease
ISS	: Injury severity score
K	: Potassium
LIS	: Lung injury score
LODS	: Logistic Organ Dysfunction Score
LOS	: Length of stay
LSS	: Late Septic Shock
MAP	: Mean arterial pressure
MDR	: Multiple drug resistance

MELD	: Model for end-stage liver disease
MODS	: Multiple organ dysfunction score
MPM	: Mortality probability model
MV	: Mechanical ventilation
N	: Number
Na	: Sodium
NMV	: Non invasive mechanical ventilation
NPPV	: Non invasive positive pressure ventilation
NS	: Non-significant
O/E ratio	: Observed number of deaths by the expected number
OD	: Organ Dysfunction
ODIN	: Organ Dysfunction and Infection System
O _i	: Observed frequency
OR	: Odds ratio
OSF	: Organ System Failure
PaCO ₂	: Partial pressure of arterial carbon dioxide
PaO ₂	: Partial pressure of arterial oxygen

PDD	: Patient Discharge Database
PEEP	: Positive end expiratory pressure
PORT	: Pneumonia outcome research trial
PSI	: Pneumonia severity index
RICU	: Respiratory intensive care unit
RIFLE	: Risk, injury, failure, loss and end-stage
kidney	
ROC	: Receiver operating characteristic
RPHICU	: Royal Perth Hospital Intensive Care Unit
RR	: Respiratory rate
S	: Significant
SAPS	: Simplified Acute Physiology Score
SBP	: Systolic blood pressure
SD	: Standard deviation
Sig.	: Significance
SMR	: Standardized mortality ratio
SOFA*	: Sepsis-related organ failure assessment
SOFA	: Sequential Organ Failure Assessment

SPSS	: Statistical Package for Social Science
TB	: Tuberculosis
temper.	: Temperature
TISS	: Therapeutic intervention scoring system
TLC	: Total leukocytic count
TN	: True negative
TP	: True positive
TRIOS	: Three-Day Recalibrating ICU Outcomes
US	: United States
VAP	: Ventilator-associated pneumonia
X^2 (df)	: Value at the degrees of freedom

List of contents

List of Abbreviations	I
List of Tables	VII
List of Figures.....	VIII
Acknowledgement.....	IX
Introduction and Aim of the Study.....	1
Review of Literature.....	5
Chapter I	
- Importance of ICU.....	5
- The Ideal Scoring System.....	20
- Length of Stay as a Predicted Outcome.....	22
- Classification of scoring systems.....	26
- Uses of scoring systems.....	52
- Assessment of scoring systems.....	56
- Discrimination.....	59
- Calibration.....	65
- APACHE II SCORE.....	90
- SOFA score.....	98
- SAPS II score.....	103
Chapter II	
- Role of severity scores in RICU.....	111
Subjects and Methods.....	140
Results.....	148
Discussion.....	172
Summary and Conclusion.....	190
Recommendations.....	194
References.....	195
Arabic Summary	

List of Tables

<i>Table</i>	<i>Title</i>	<i>Page</i>
1	APACHE II score	142
2	SOFA score	143
3	SAPS II score	144
4	Demographic data of the studied patients	148
5	Clinical and laboratory data of the studied patients	152
6	comparison between some qualitative data of the studied patients	153
7	comparison between different qualitative variables regarding the outcome of the patients	154
8	comparison between different quantitative variables regarding the outcome of the patients	156
9	comparison between different variables of APACHE II score regarding the outcome of the patients	157
10	comparison between different variables of SOFA score regarding the outcome of the patients	159
11	comparison between different variables of SAPS II score regarding the outcome of the patients	161
12	Correlation between different scores	162
13	ROC curve of APACHE II Score	165
14	ROC curve of SOFA Score	166
15	ROC curve of SAPS II Score	167
16	Logistic Regression model for prediction of mortality from three scores	168
17	Comparison between APACHE II score predicted and observed mortality	169
18	Comparison between SOFA II score predicted and observed mortality	170
19	Comparison between SAPS II score predicted and observed mortality	171