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

Oi : 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 Tables