The Association of Serum Total Cortisol As Adrenal Response Marker And Severe Community Acquired Pneumonia

Thesis

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List of Contents

Title Page No.

List of Tables 5
List of Figures 7
List of Abbreviations 8
Introduction 1
Aim of the Work 14
Review of Literature
- Severe Community Acquired Pneumonia 15
- Cortisol Hormone as Stress Biomarker 50

Patients and Methods 70
Results 83
Discussion 105
Summary 113
Conclusion 117
Recommendations 118
References 119
Arabic Summary

List of Tables

Table No.	Title	Page No.
Table (1):	Modes of spread.	16
Table (2):	Pneumonia severity index parameters	36
Table (3):	Pneumonia severity index grades	36
Table (4):	CURB-65 score parameters.	37
Table (5):	CURB-65 grades.	37
Table (6):	Alternative pneumonia-specific severity scores	39
Table (7):	Recommended antimicrobial therapy for specific pathogens	46
Table (8):	Recommendations for Steroid Replacement Therapy	69
Table (9):	CURB-65 score parameters	77
Table (10):	CURB-65 score grades	77
Table (11):	Pneumonia severity index parameters	78
Table (12):	Pneumonia severity index grades	78
Table (13):	Vital signs, blood gases, liver functions, kidney function, erythrocyte sedimentation rate, total leucocytic count, and pneumonia severity scores among patients.	83
Table (14):	Perception of blood pressure among patients	84
Table (15):	Respiratory symptoms among patients	85
Table (16):	Descriptive data among studied patients regarding bacterial and H1N1 influenza virus etiology	86
Table (17):	CT chest patterns among patients	88
Table (18):	Descriptive data among patients regarding need to mechanical ventilation.	89
Table (19):	Descriptive data among patients group regarding Glasgow Coma Scale (GCS).	90
Table (20):	Comparison between patients and control regarding age.	91
Table (21):	Comparison between patients and control regarding sex.	91

List of Tables

Table No.	Title	Page No.
Table (22):	Comparison between patients and controls regarding temperature, pulse and respiratory rate	93
Table (23):	Comparison between the two studied groups regarding urea and creatinine.	95
Table (24):	Comparison between the two studied groups regarding ESR and TLC.	97
Table (25):	Comparison between the two studied groups regarding serum total cortisol.	99
Table (26):	Statistical study of serum total cortisol (µg/dl) among patients in relation to sex, and co-morbidities.	100
Table (27):	Statistical study of serum total cortisol (µg/dl) among patients in relation to perception of blood pressure.	100
Table (28):	Statistical study of serum total cortisol (µg/dl) among patients in relation to bacterial etiology.	101
Table (29):	Comparison between serum total cortisol (µg/dl) in patients with combined influenza viral and bacterial etiology and patients with only bacterial etiology.	101
Table (30):	Statistical study of serum total cortisol (µg/dl) among patients in relation to CT chest findings.	102
Table (31):	Statistical study of serum total cortisol (µg/dl) among patients in relation to need to mechanical ventilation.	102
Table (32):	Correlation between serum total cortisol (µg/dl) and Pneumonia Severity Index (PSI) score.	103
Table (33):	Correlation between serum total cortisol (µg/dl) and other variables among patients.	104

List of Figures

Fig. No.	Title	Page No.
Figure (1):	The progression of CAP to SCAP	15
Figure (2):	CT chest shows consolidation with air bronchogram. Lobar pneumonia in the right upper lobe	24
Figure (3):	Chest X –ray shows Air bronchogram in lobar pneumonia in the right upper lobe.	24
Figure (4):	Chemical structure of cortisol	59
Figure (5):	Perception of blood pressure among patients.	84
Figure (6):	Respiratory symptoms among patients.	85
Figure (7):	Descriptive data of bacterial and H1N1 influenza virus etiology among patients.	87
Figure (8):	Descriptive data of CT chest findings among patients.	88
Figure (9):	Descriptive data of mechanical ventilation among patients.	89
Figure (10):	Descriptive data of glasgow coma scale among patients.	90
Figure (11):	Ages of cases studied groups.	92
Figure (12):	Sex distribution of studied groups.	92
Figure (13):	Temperature of studied groups.	93
Figure (14):	Pulse of studied groups.	94
Figure (15):	Respiratory rate of studied groups.	94
Figure (16):	Blood urea of studied groups.	96
Figure (17):	Serum creatinine of studied groups.	96
Figure (18):	ESR 1st HR of studied groups.	98
Figure (19):	TLC of studied groups.	98
Figure (20):	Serum total cortisol of studied groups.	99
Figure (21):	Correlation between PSI score and serum total cortisol level.	103

List of Abbreviations

Abb.	Full term
µg/ dl	Microgram/deciliter
ACIP	Advisory Committee on Immunization Practices
ACTH	Adrenocorticotropin hormone
AKI	Acute kidney injury
APCs	Antigen-presenting cells
ARDS	Acute respiratory distress syndrome
ATS	American Thoracic Society
AVP	Vasopressin hormone
BAL	Broncho-alveolar lavage
CAP	Community-acquired pneumonia
CIRCI	Critical illness-related Corticosteroid insufficiency
COMT	Catechol-O-methyltransferase gene affected people's multitasking performances
COPD	Chronic obstructive pulmonary disease
CRH	Corticotrophin releasing hormone
CRH	Corticotropin-releasing hormone
CRP	C-reactive protein
CT scan	Thoracic computed tomography
CURB-65	Confusion, urea nitrogen, respiratory rate, BP, age: 65 years
D2	Dopamine type 2
ESR	Erythrocyte sedimentation rate.
FKBP-5	Fragment K binding protein – 52 antibody
GCS	Glasgow coma scale
GH	Growth hormone
GHRH	GH releasing hormone
GmbH	Gesellschaft mit beschränkter Haftung which means "company with limited liability."
GRMF	Glucosteroid response modifying factor
H. influenza	Heamophilus influenza
HDL	High-density lipoprotein
HPA	The hypothalamic-pituitary-adrenal
hPL	Human placental lactogen
ICU	Intensive care unit

List of Abbreviations cont…

Abb.	Full term
IDSA	Infectious Diseases Society of America
IFN	Interferon
IL	Interleukin
IRVS	Intensive respiratory or vasopressor support
IV	Intravenous
JAK	Janus kinase
NIV	Non-invasive ventilation
nmol/L	Nanomol/Liter
PCR	Polymerase chain reaction
PCT	Procalcitonin
POD	Per oral dose
POMC	Proopiomelanocortin
PRL	Prolactin
PSI	Pneumonia severity index
PVN	Paraventricular nucleus
RIFLE	Risk Injury Failure Loss
RR	Respiratory rate.
S. aureus	Staphylococcus aureus
S. pneumoniae	Streptococcus pneumoniae
SaO2	Arterial oxygen saturation
SCAP	Severe community acquired pneumonia
Serum T. cortisol	Serum total cortisol
SNS	The sympathetic nervous system
SRIF	Somatotropin-release inhibiting factor
STAT	Signal transduction and activators of transcription
Th	T helper
TLC	Total leucocytic count.
TNF	Tumor-necrosis-factor
TUS	thoracic ultrasound
V1	Vasopressin receptor 1

List of Abbreviations cont…

Abb.	Full term
Val/Met	The amino acids methionine and valine in certain paired positions in the molecular structure of the COMT enzyme
Val/Val	The amino acid valine in certain paired positions in the molecular structure of the COMT enzyme
VO2 max	Maximal oxygen consumption, maximal oxygen uptake

ABSTRACT

The study showed that there was no statistically significant difference in serum total cortisol level regarding bacterial etiology and combined bacterial and viral etiology.

The study found also that there was no statistically significant difference in serum total cortisol level between CT chest pneumonia patterns.

The study found also there was no statistically significant difference in serum total cortisol level between the patients who were on mechanical ventilation and the patients who were not.

The study showed that there was no correlation between serum total cortisol and glasgow coma scale, arterial blood gases and total leucocytic count.

The study found that the patients had a statistically significant increase in the mean value of serum total cortisol among level when compared with controls.

In this study we found serum total cortisol level was positively correlated with the pneumonia severity index.
Keywords: Interleukin- Intravenous- Intensive respiratory or vasopressor support- Polymerase chain reaction- Proopiomelanocortin- Pneumonia severity index- Respiratory rate

INTRODUCTION

Community-acquired pneumonia (CAP) is the most common cause of death associated with infectious disease in the United States. More than one million patients with CAP require hospitalization annually, 10% of whom will be admitted to an intensive care unit ***(Niederman, 2009)***.

Community-acquired pneumonia (CAP) is an acute lower respiratory tract inflammation acquired from the community with cough, increased body temperature, dyspnea pleural chest pain and tachypnea as typical symptoms. Diagnosis is confirmed with recent opacity in chest radiograph ***(Woodhead et al., 2011)***.

Severe community acquired pneumonia (SCAP) is a progressive disease developing from a local pulmonary infection to a systemic infection manifesting as sepsis, severe sepsis, septic shock and multiorgan failure when inflammatory cytokines spread into systemic circulation ***(Waterer et al., 2011)***.

Cortisol, the predominant corticosteroid secreted by the adrenal cortex, is an important endogenous regulator of inflammation. During an infectious episode, cortisol production increases, and exerts anti-inflammatory and immunosuppressive activities ***(Marik, 2008)***.

In patients with community-acquired pneumonia (CAP), a high serum cortisol at the moment of hospital admission is associated with an adverse outcome ***(Salluh et al., 2010)***.

Aim of the Work

Estimation of the serum total cortisol level in patients with severe CAP and whether it correlates with the severity of illness.

Chapter 1

SEVERE COMMUNITY ACQUIRED PNEUMONIA

Definition

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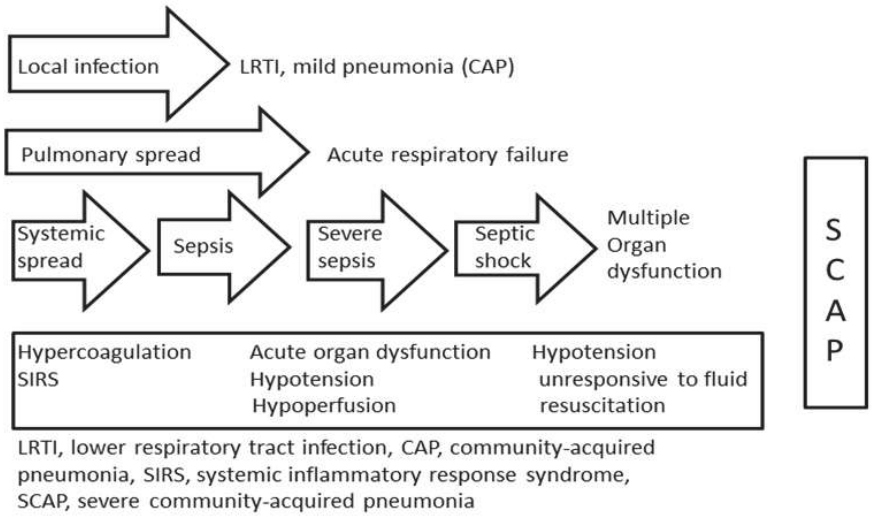

Figure (1): The progression of CAP to SCAP ***(Rello, 2008)***.