



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكرو فيلم

# بسم الله الرحمن الرحيم



**MONA MAGHRABY**



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التوثيق الإلكتروني والميكروفيلم



# شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

### قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



### يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



**MONA MAGHRABY**

**Effect of phosphate level on the outcome  
of COPD patients in the Intensive  
Care Unit**

*Thesis*

Submitted for partial fulfillment of M.Sc. Degree  
in **Intensive Care Medicine**

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**2020**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

# قالوا

سبحانك لا علم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

سورة البقرة الآية: ٣٢



## Acknowledgments

First and foremost, I feel always indebted to **Allah**, the Most Kind and Most Merciful.

I would like to express my endless gratitude and appreciation to my eminent **Dr. Gihan seif El Nasr Mohamed**, Professor of Anesthesia, Intensive Care and Pain Management, Faculty of Medicine, Ain Shams University, for giving me the honor to work under her supervision and from whom i learned a lot. She encouraged me, removed all the obstacles from my way and pushed me to achieve success.

I'd like to express my respectful thanks and profound gratitude to **Dr. Ahmed Ali El Shebing**, Assistant professor of Anesthesia, Intensive Care and Pain Management, Faculty of Medicine, Ain Shams University, for his keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work,

My sincere thanks to **Dr. Mohammed Mahmoud Maarouf**, Lecturer of Anesthesia, Intensive Care and Pain Management, Faculty of Medicine, Ain Shams University, for his continuous guidance, honest help and endurance that made this thesis come to light.

My cordial thanks are due to my parents, my wife and all my family members for their continuing support and endless love. Last but not least, my sincere gratitude and appreciation are due to those who kindly agreed to participate in this study.

Ahmed Mohamed Heikal  
2020

## List of Contents

<i>Subject</i>	<i>Page No.</i>
List of Abbreviations.....	i
List of Tables.....	iii
List of Figures.....	v
Introduction.....	1
Aim of the Work.....	3
Review of Literature	
Chapter (1): Chronic Obstructive Pulmonary Disease.....	4
Chapter (2): Acute exacerbation of chronic obstructive pulmonary disease (AECOPD) and its management in ICU.....	18
Chapter (3): Phosphorus.....	29
Patients and Methods.....	40
Results.....	45
Discussion.....	67
Conclusion.....	78
Limitation.....	79
Recommendations.....	80
Summary.....	81
References.....	84
Arabic Summary.....	—

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## **List of Abbreviations**

<i><b>Abbr.</b></i>	<i><b>Full-term</b></i>
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<b>2,3BPG</b>	: 2,3 Biphosphoguanide.
<b>ABGs</b>	: Arterial blood gases.
<b>AECOPD</b>	: Acute exacerbated chronic obstructive pulmonary disease.
<b>ALT</b>	: Alanine aminotransferase.
<b>AST</b>	: Aspartate aminotransferase.
<b>ATP</b>	: Adenosine triphosphatase.
<b>ATS</b>	: American Thoracic Society.
<b>AUC</b>	: Area under the curve.
<b>BE</b>	: Base excess.
<b>Ca</b>	: Calcium.
<b>CBC</b>	: Complete blood count.
<b>CO<sub>2</sub></b>	: Carbondioxide.
<b>COPD</b>	: Chronic obstructive pulmonary disease.
<b>CT</b>	: Computed tomography.
<b>dl</b>	: Deciliter.
<b>ECG</b>	: Electrocardiogram.
<b>FEV<sub>1</sub></b>	: Forced expiratory volume in one second.
<b>FiO<sub>2</sub></b>	: Fraction of inspired oxygen.
<b>FVC</b>	: Forced vital capacity.
<b>GI</b>	: Gastrointestinal.
<b>GOLD</b>	: Global Initiative for Chronic Obstructive Lung Disease.



<b>HCO<sub>3</sub></b>	: Bicarbonate.
<b>H<sub>2</sub>O</b>	: Water.
<b>ICU</b>	: Intensive care unit.
<b>INR</b>	: International Normalized Ratio.
<b>K</b>	: Potassium.
<b>L</b>	: Liter.
<b>MDI</b>	: Metered dose inhaler.
<b>mEq</b>	: Milliequivalent.
<b>Mg</b>	: Magnesium.
<b>mg</b>	: milligram.
<b>ml</b>	: milliliter
<b>mmHg</b>	: Millimeter mercury.
<b>MV</b>	: Mechanical ventilation.
<b>Na</b>	: Sodium.
<b>NIPPV</b>	: Non invasive positive pressure ventilation.
<b>NIV</b>	: Non invasive ventilation.
<b>NPV</b>	: Negative Predictive value.
<b>PaCO<sub>2</sub></b>	: Partial pressure of arterial carbon dioxide.
<b>PaO<sub>2</sub></b>	: Partial pressure of arterial oxygen.
<b>PEEP</b>	: Positive end-expiratory pressure.
<b>PH</b>	: Negative logarithm of hydrogen ion concentration.
<b>PO<sub>4</sub></b>	: Phosphorus.
<b>PPV</b>	: Positive Predictive Value.
<b>Pt</b>	: Prothrombine time.
<b>PTH</b>	: Parathormone.
<b>Ptt</b>	: Partial thromboplastine time.
<b>ROC</b>	: Receiver operator characteristic curve

<b>SaO<sub>2</sub></b>	: Arterial oxygen saturation.
<b>SD</b>	: Standard deviation.
<b>SPSS</b>	: Statistical package for social science.
<b>TIMPs</b>	: Tissue inhibitors of matrix metalloproteinases.
<b>USA</b>	: United State of America.
<b>WHO</b>	: World Health Organization
<b>β<sub>2</sub></b>	: Beta 2.

## **List of Tables**

<i><b>Table No.</b></i>	<i><b>Title</b></i>	<i><b>Page No.</b></i>
<b>Table (1):</b>	Classification of Severity of Airflow Limitation in COPD.....	14
<b>Table (2):</b>	Differential Diagnosis of Chronic Obstructive Pulmonary Disease.....	17
<b>Table (3):</b>	Clinical history, physical findings and diagnostic procedures in patients with AECOPD.....	20
<b>Table (4):</b>	Medical history and signs of severity of exacerbation of COPD.....	22
<b>Table (5):</b>	Demographic distribution of the studied patients regarding to phosphate level:.....	45
<b>Table (6):</b>	Level of phosphorus among all studied patients.....	47
<b>Table (7):</b>	ABG parameters in studied patients:.....	47
<b>Table (8):</b>	Ventilation need according to level of phosphorus:.....	49
<b>Table (9):</b>	Comparing level of electrolytes with level of phosphorus in studied patients:.....	50
<b>Table (10):</b>	Need for ventilation as regard to ABG parameters in all studied patients:.....	51
<b>Table (11):</b>	Need for ventilations as regard to electrolytes:.....	53
<b>Table (12):</b>	Outcome of ventilated subjects:.....	54
<b>Table (13):</b>	Duration of ventilation in ventilated patients:.....	55
<b>Table (14):</b>	Outcome of studied subjects:.....	55

<b>Table (15):</b>	Validity of phosphorus as early screening for ventilation necessity:.....	57
<b>Table (16):</b>	Level of K in hypophosphatemic group (n=32) (comparing number, need for ventilation, duration of ventilation and outcome) .....	59
<b>Table (17):</b>	Level of Ca in hypophosphatemic group (n=32) (comparing number, need for ventilation, duration of ventilation and outcome of ventilated patients) .....	60
<b>Table (18):</b>	Level of Na in hypophosphatemic group (n=32) (comparing number, need for ventilation, duration of ventilation and outcome) .....	61
<b>Table (19):</b>	Prognosis of multiple electrolytes deficiency in hypophosphatemic patients (n=32) .....	62
<b>Table (20):</b>	Level of K in normal phosphorus group (n=18) (comparing number, need for ventilation, duration of ventilation and outcome).....	63
<b>Table (21):</b>	Level of Ca in normal phosphorus group (n=18) (comparing number, need for ventilation, duration of ventilation and outcome) .....	64
<b>Table (22):</b>	Level of Na in normal phosphorus group (n=18) (comparing number, need for ventilation, duration of ventilation and outcome) .....	65
<b>Table (23):</b>	Prognosis of multiple electrolytes deficiency in normal phosphorus group (n=18).....	66

## **List of Figures**

<i><b>Figure No.</b></i>	<i><b>Title</b></i>	<i><b>Page No.</b></i>
<b>Figure (1):</b>	Comparing phosphorus in studied patients as regard to sex.....	46
<b>Figure (2):</b>	Comparing phosphorus in studied patients as regard to demographic studies.....	46
<b>Figure (3):</b>	Level of phosphorus and ABG parameters in studied patients.....	48
<b>Figure (4):</b>	Ventilation need according to level of phosphorus.....	49
<b>Figure (5):</b>	Need for ventilation as regard to ABG parameters.....	52
<b>Figure (6):</b>	Outcome of studied subjects.....	56
<b>Figure (7):</b>	Validity of phosphorus as early screening for ventilation necessity.....	58

## Introduction

**T**he prevalence of chronic obstructive pulmonary disease (COPD) in developed countries is progressively increasing, because of the process of aging of populations. Acute exacerbation of COPD with decompensated respiratory acidosis lead to repeated hospital admissions and are associated with high mortality, making it the leading cause of disability and morbidity (**Barnes, 2000**).

The World Health Organization predicts that by 2020, COPD will rise from its current ranking as the 12th most prevalent disease worldwide to the fifth and from the sixth most common cause of death to the third by the year 2020. The admission of COPD patients to an intensive care unit is common, as 74% of them need mechanical ventilation (MV) support. Despite the diffuse use of non-invasive MV recently, many patients still need traditional MV. Some studies had showed a relationship between severity of disease and blood phosphorus levels (**GOLD, 2019**).

The lower phosphorus blood levels are, the more serious the disease is, however its effect on COPD patients is not clear enough. Severe hypophosphatemia may lead to serious complications such as tetany, seizures, coma, rhabdomyolysis, respiratory failure and ventricular tachycardia. Although



hypophosphatemia has been only occasionally implicated as a cause of respiratory failure, its impact on respiratory muscle functioning in patients hospitalised for other reasons remains to be determined (**Amanzadeh and Reilly, 2006**).