بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / سامية زكى يوسف

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: لا يوجد

Correlation between Central Venous pressure and Inferior Vena Cava Diameter for Fluid assessment in patients with Chronic Obstructive Pulmonary Disease

Thesis

Submitted for Partial Fulfillment of Master Degree in General Intensive care Medicine

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Ahmed Salah El Deen Habib

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List of Abbreviations

Abb.	Full term
ANCA	Anti-neutrophil cytoplasmic antibody
BMI	Body-mass index
BUN	Blood urea nitrogen
CI	Compressibility index
CO	Cardiac output
CO2	Carbon dioxide
COPD	Chronic obstructive pulmonary disease
CPFE	Combined pulmonary fibrosis and emphysema
CTR	Cardiothoracic ratio
CVP	Central venous pressure
CXR	Chest x-ray
EABV	Effective arterial blood volume
FEV1	Forced expiratory volume
FVC	Forced vital capacity
FVD	Femoral vein diameter
GD	Graves' Disease
GOLD	Global Initiative for Chronic Obstructive Lung Disease
HR	Heart rate
HS	Highly significant
IBM SPSS	Statistical Package for Social Science
ICS	Inhaled corticosteroids
IVC CI	Inferior vena cava collapsibility index
IVC	Inferior vena cava
IVC-CI	IVC collapsibility indices
LABA	Acting beta2-agonists
LAMA	Long-acting antimuscarinic agents
LVEF	Left ventricular ejection fraction
MABP	Mean arterial blood pressure

List of Abbreviations Cont...

Abb.	Full term
NS	Non significant
PAOP	Pulmonary artery occlusion pressure
PCV13	13-valent pneumococcal conjugate vaccine
PDE	Phosphor diest erase
PDE4	Phosphor diesterase-4
PLR	Passive leg-raising test
PPSV23	23-valent pneumococcal polysaccharide vaccine
PvCO2	Pressure of carbon dioxide in venous blood
RAP	Right a trial pressure
RSV	Respiratory syncytial virus
S	Significant
SAMA	Short-acting anti muscarinic agents
TAPSE	Tricuspid annular plane systolic excursion
TEE	Trans esophageal echocardiography
TNF	Tumor necrosis factor
USG	Ultra sonography
V	Ventilation
VPW	Vascular pedicle width
VR	Venous return

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INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is now the third leading cause of death globally. ***(Lozano et al., 2010).*** Although COPD primarily affects the lungs, it is now also recognized as a complex multi-component disease characterized by chronic systemic inflammation that frequently coexists with other conditions known as comorbidities ***(Divo et al., 2012).***

Patients with mild-to-moderate COPD, the Pulmonary artery: Aorta ratio is associated with RV hypertrophy, RV enlargement, and decreased RV function independent of systolic or diastolic left heart function. These changes to the PA seem to reflect primary pulmonary vascular changes and may be predictive of mild or early PH in COPD. ***(Iyer et al., 2014).*** Moreover; Decreased tricuspid annular plane systolic excursion, decreased tricuspid annular systolic velocity, and elevated tricuspid regurgitation velocity were associated with all-cause mortality. LV diastolic dysfunction is also present in COPD patients with normal or mildly increased pulmonary artery pressure ***(Hilde et al., 2013).***

Accurate assessment of intravascular volume remains one of the most challenging and important tasks for clinicians. A protocol of early goal directed therapy was done, which included aggressive fluid resuscitation targeted to central venous pressure and physiological variables, reduced organ

failure and improved survival in patients with critical illness ***(Rivers et al., 2001).*** However, more recent studies in critically ill patients have demonstrated that excessive fluid resuscitation and markedly positive net fluid balance is associated with higher rates of complications and increased mortality ***(Vincent, 2006).***

Availability of an ultrasound device at the critical care setting significantly enhances possible diagnostic ways and makes the management of critically ill patients more effective. Growing amount of papers confirms that qualified intensivists with background in medicine and anaesthesiology may provide accurate, safe and extensive diagnosis of the haemodynamic system with the aid of Ultrasonography ***(Balík, 2019).***

Interrogation of abdomen in sepsis of unknown origin, acute abdominal syndrome or in acute renal failure may direct further diagnostic and therapeutic steps in critically ill patient. Time factor is particularly important in shock and during admission of severe trauma where patient´s survival depends on correctly launched diagnostic algorithm. Ultrasound plays a key role here ***(Balík, 2019).***

AIM OF THE WORK

The objective of this study is to determine the correlation between central venous pressure (CVP) and the IVC collapsibility index for estimating the fluid status in COPD patients.

Chapter 1

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Introduction:

Chronic obstructive pulmonary disease (COPD) is a common and treatable disease characterized by progressive airflow limitation and tissue destruction. It is associated with structural lung changes due to chronic inflammation from prolonged exposure to noxious particles or gases most commonly cigarette smoke. Chronic inflammation causes airway narrowing and decreased lung recoil. The disease often presents with symptoms of cough, dyspnea, and sputum production. Symptoms can range from being asymptomatic to respiratory failure ***(Singh et al., 2019).***

Etiology:

COPD is primarily present in smokers and those greater than age 40. Prevalence increases with age and it is currently the third most common cause of morbidity and mortality worldwide. In 2015, the prevalence of COPD was 174 million and there were approximately 3.2 million deaths due to COPD worldwide. However, the prevalence is likely to be underestimated due to the under diagnoses of COPD ***(GBD 2015 Chronic Respiratory Disease Collaborators, 2015).***