بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MONA MAGHRABY

CORRELATION OF INTRAVENOUS VITAMIN C INJECTION AND PLASMA ALBUMIN LEVEL IN BURNT RATS (EXPIRAMENTAL ANIMAL STUDY)

A thesis

Submitted for Partial Fulfillment of Master Degree in Plastic and Maxillofacial Surgery

By

Aya Ibrahim Abdullah Khalifa Dief

(M.B.B.Ch)

Faculty of Medicine, Ain Shams University

Under Supervision of

Prof. Dr. Ashraf Maher Farid

Professor of Plastic and Maxillofacial Surgery
Faculty of Medicine– – Ain Shams University

Prof. Dr. Ibrahim Hussein Kamel

Professor of Plastic and Maxillofacial Surgery
Faculty of Medicine– Ain Shams University

Dr. Ebrahim Mohamed Amin

Lecturer of Plastic and Maxillofacial Surgery
Faculty of Medicine– Ain Shams University

Faculty of Medicine
Ain Shams University
2020

صدق الله العظيم

سورة طه آية (١١٤)

Acknowledgment

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

I'd like to express my respectful thanks and profound gratitude to ***Prof. Dr. Ashraf Maher Farid,*** *Professor of Plastic and Maxillofacial Surgery 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.*

I am also delighted to express my deepest gratitude and thanks to ***Prof. Dr. Ibrahim Hussein Kamel,*** *Professor of Plastic and Maxillofacial Surgery Faculty of Medicine– Ain Shams University, for his kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.*

I am deeply thankful to ***Dr. Ebrahim Mohamed Amin,*** *Lecturer of Plastic and Maxillofacial Surgery Faculty of Medicine– Ain Shams University, for his great help, active participation and guidance.*

Aya Ibrahim

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List of Abbreviations

Abb.	Full term
6S	The Scandinavian Starch for Severe Sepsis/Septic Shock
AA	Ascorbic acid
ABA	The American Burn Association
ACS	Abdominal compartment syndrome
AKI	Acute kidney injury
ALBIOS	Albumin Italian Outcome Sepsis
ARDS	Acute respiratory distress syndrome
Bpm	Beats per minute
CHEST	Crystalloid versus Hydroxyethyl Starch
Co	Carbon monoxide
CRISTAL	Colloiods versus Crystalloids for Resuscitation of Critically Ill patients
CT	Computed tomography
DAMPs	Damage Associated Molecular Patterns
FiO2	Fraction of inspired oxygen;
GFR	Glomerular filtration rate
HAM	Human amniotic membrane
HBO	Hyperbaric oxygen
HSA	Human serum albumin
IAH	Intra-abdominal hypertension
IAP	Intra-abdominal pressure
ICU	Intensive care unit
IGF-1	Insulin-like growth factor 1
IL	Interleukin
IVF	Intravenous fluid

List of Abbreviations Cont...

Abb.	Full term
KDIGO	Kidney Disease: Improving Global Outcomes
LPS	Lipopolysaccharide
MAP	Mean Arterial Pressure
NADPH	Nicotinamide adinadin dinucleotide phosphate
NF-κB	Nuclear Factor kappa B
NLR	NOD Like Receptors
NOD	Nucleotide oligomerization domain
NOS	Nitric oxide synthase
O2	Oxygen
PAMPs	Pathogen Associated Molecular Patterns
PaO2	Partial pressure of arterial oxygen
POC	Point of care
PVR	Peripheral vascular resistance
qSOFA	Quick SOFA.
ROS	Reactive oxygen species
RRT	Renal replacement therapy
SOFA	Sequential Organ Failure Assessment
SVR	Systemic vascular resistance
TBSA	Total body surface area
TLRs	Toll-like receptors
TNF	Tumor Necrosis Factor
WHO	World Health Organization
XO	Xanthine oxidase

INTRODUCTION

Burn is tissue injury caused by heat, radiation, electricity, contact with hot objects or chemicals. It's a global public health problem accounting for an estimated 180000 death annually according to WHO. Non fatal burns are a leading cause of morbidity including prolonged hospitalization ending with disfigurement and disability. The majority of burns occur in middle and lower income areas ***(James et al., 2019).***

Burn is considered a post-traumatic inflammatory disease that causes infection and damage to both local and distant tissues. Tissues respond to burn injury by releasing inflammatory mediators resulting in increased vascular permeability. This leads to shift of intravascular fluid and plasma proteins into the interstitial space resulting in decreased capillary oncotic pressure. The newly extravasated proteins create an osmotic gradient that pulls additional fluid into the interstitial space resulting in edema formation. The peak of edema occurs in the first 8 hours post burn injury thus, those 8 hours are critical in resuscitation of burn patients ***(Li et al., 2018).***

Albumin is an exclusive intravascular protein that plays a significant role in our lives. In addition to the key role in the balance of the oncotic pressure, endogenous substances and drugs are transported by binding to albumin. It is also thought that it plays an antioxidant function. Due to this clinical potential, albumin replacement is applied as a volume expander

in burn shock resuscitation and to correct hypoalbuminemia in the chronic period ***(Çakırca et al., 2019).***

Ascorbic acid or Vitamin C is a water-soluble micronutrient required for various biological functions. It acts as a cofactor in enzymatic reactions such as collagen synthesis and deposition in vascular endothelium. Vitamin C is also an important antioxidant, eliminating free radicals released from burnt tissues. In addition to that, previous studies have demonstrated the fluid saving effect of high-dose vitamin C ***(Rizzo et al., 2016).***

Aim of the Work

Testing the effect of intravenous vitamin C injection on plasma albumin level in burnt rats.