شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

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

يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

بعض الوثائـــــــق الاصليـــــة تالفـــة

بالرسالة صفحات لم ترد بالاصل

EFFECT OF PROPOFOL VERSUS HALOTHANE ON LIPID PEROXIDES IN TOURNIQUET-INDUCED ISCHEMIA REPERFUSION INJURY

Thesis

Submitted for Partial fulfillment of M.D. degree in
Anesthesia

By

Ahmed Esam Al-Dein Mohammed Ali

(M.B.B.CH., M.Sc. Anesthesia)

Supervisors

Prof. Dr
MOHAMMED IBRAHIM OKAB
Professor of anesthesia
Faculty of Medicine
Tanta University

Prof. Dr
LOBNA MOHAMMED ABO-EL-NASR
Professor of anesthesia
Faculty of Medicine
Tanta University

Prof. Dr
ALAA EL-DIN EL-SAYED EL-SISI
Assistant professor of pharmacology-department of pharmacology and toxicology
Faculty of pharmacy
Tanta University

FACULTY OF MEDICINE
TANTA UNIVERSITY
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بسم الله الرحمن الرحيم

"قال رب اشرح لي صدري ويسر لي أمري واحلل
عقدة من لساني يفقهوا قولي"

صدق الله العظيم
(طه ٢٥-٢٨)

First , and for most thanks to ALLAH,
the most merciful, gracious and
compassionate, to ALLAH
everything in life is resumed.

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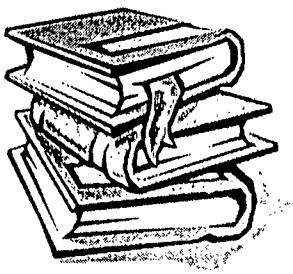

INTRODUCTION

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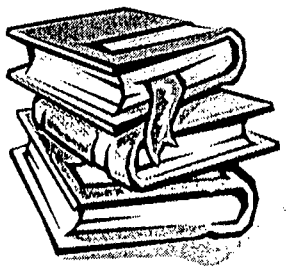
Tourniquets are often used in limb surgery to avoid intraoperative bleeding. Circulatory occlusion is achieved by the use of a pneumatic tourniquet, whereas traditional Esmarch ischemia additionally involves previous exsanguinations of the limb. These procedures induce muscle ischemia that is accompanied by anaerobic glycolysis, formation of lactate, and depletion of high-energy phosphates, resulting in the production of adenosine, inosine, and its oxidation product, hypoxanthine. Prolonged ischemia results in loss of cellular homeostasis, disruption of ion gradients, and breakdown of membrane phospholipids, which is reflected by release of choline. After reperfusion, activation of neutrophils, formation of oxygen radicals, and release of vasoactive factors may cause damage to local and peripheral tissues [1, 2].

Reactive oxygen species (ROS) have been proposed to play both physiological roles in cell signaling in skeletal muscle[3] and pathological roles in the skeletal muscle damage and degeneration that occur in a number of different situations [4]. A considerable amount of data has been presented concerning the role of these species in the muscle damage that accompanies ischemia and reperfusion or unaccustomed or excessive exercise [5, 6]. Skeletal muscle is recognized to be relatively resistant to injury due to ischemia, but there are important clinical examples of where this damage does occur, such as after prolonged use of a

tourniquet in orthopedic surgery or tissue damage that may occur as a result of tourniquet ischemia reperfusion injury and after surgery to correct arterial occlusion[7,8]. Several investigators have reported that administration of scavengers of free radical species reduced reperfusion injury to skeletal muscle[9, 10].



REVIEW OF LITERATURE

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TOURNIQUETS

'The use of a bloodless field is an integral part of much limb surgery, but may have become a ritual'. - Leslie Klenerman[11]

The pneumatic tourniquet was introduced in 1904 by Harvey Cushing to maintain a bloodless field during extremity surgery. Since then its use has become routine. Although modern tourniquets are designed to minimize the incidence of complications, their use is still associated with potentially serious morbidity and even mortality. Consequently, a thorough knowledge of their design, safety and the pathophysiology of tourniquet-induced skeletal muscle ischemia-reperfusion injury is mandatory for their use. Advances in molecular biology is increasing our understanding of the pathophysiology of tourniquet-induced ischemia-reperfusion injury at the cellular level, therefore, allowing for more scientifically valid guidelines in the use of pneumatic tourniquets with respect to safe tourniquet-application times and inflation pressures [12].

Pneumatic tourniquet design and care

A modern pneumatic tourniquet system comprises several components which allow for safe and precise regulation of cuff pressure to minimize complications resulting from excessive inflation or accidental deflation of the cuff intra-operatively. There is a choice of gas (nitrogen) or air- generated facilities for tourniquet inflation from either mains supply or cylinders. Freon (dichlorodifluoromethane), an ozone-