

شبكة المعلومات الجامعية







شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

#### جامعة عين شمس

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# بالرسالة صفحات لم ترد بالإصل

## MANAGEMENT OF ACUTE RESPIRATORY TRACT BURNS, CLINICAL AND EXPERIMENTAL STUDY

Thesis
Submitted for Partial Fulfillment of M.D. Degree in
General Surgery

By

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وَسِعَ رَبُّنَا كُلَّ شَيْءٍ عِلْمًا عَلَى ٱللَّهِ تَوَكَّلْنَا

الأعراب الما



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First of all and above all, great thanks to ALLAH.

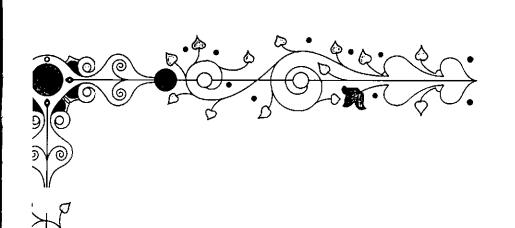
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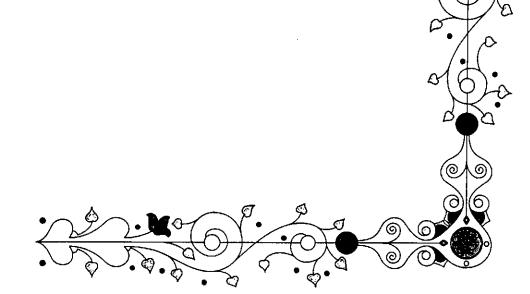
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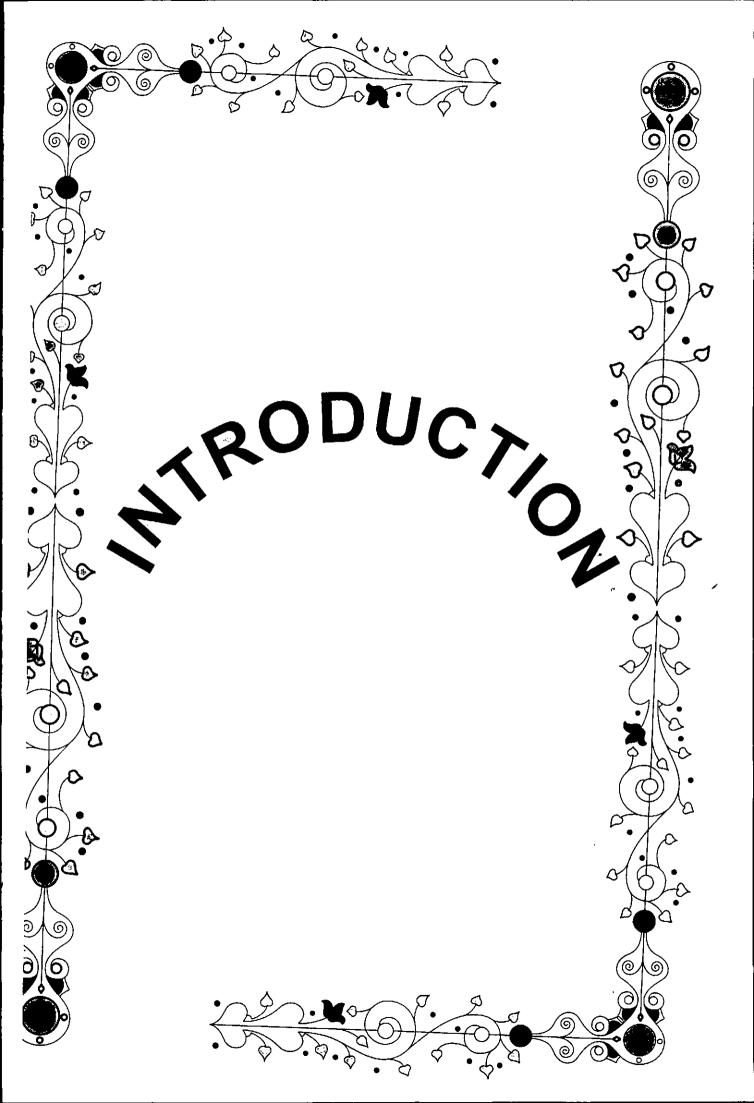


## TO THE MEMORY OF MY FATHER TO MY FAMILY



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#### Introduction

Fire has provided mankind with a tool of massive importance. Its ubiquitous use inevitably associated with the dual threats of accidental ignition and loss of containment. The delicate balance between utility and hazard has been progressively disturbed with the increasing use of synthetic materials and chemicals that ignite and burn more readily than most natural equivalents <sup>(1)</sup>.

Burn injuries still considered as one of the most serious and devastating forms of physical and psychological trauma that man could sustain. More than 1 million burn injuries occur annually in the United States. Although most of these burn injuries are minors, but 60,000 to 80,000 people require admission to a hospital or to a major burn center for treatment with about 5000 mortality of these patients <sup>(2)</sup>. In Spain, 31.2 per 100000 person are referred with major burns to a specialized burn unit for definitive treatment <sup>(3)</sup>. However, in Egypt, one out of nine hundreds Egyptian persons is affected by a major burn <sup>(4)</sup>.

In USA, the burn mortality rate (57.1deaths per million population in 1988) is the second highest in the world and the highest of all industrialized countries -almost twice that of second- ranking Canada (29.7 deaths per million in the same year). Fifty thousand burn patients annually remain hospitalized for over 2 months each year, indicating the severity of illness associated with this injury (5).

Major burns continues to pose a significant problem in its occurrence and treatment and it requires multidisciplinary treatment for patient survival and recovery. Although it is likely that the general principles of successful treatment of this injury have been formulated, there still remain, however, many problems for the burn surgeon and the clinical team to solve in the difficult task of treating the burned patient (6).

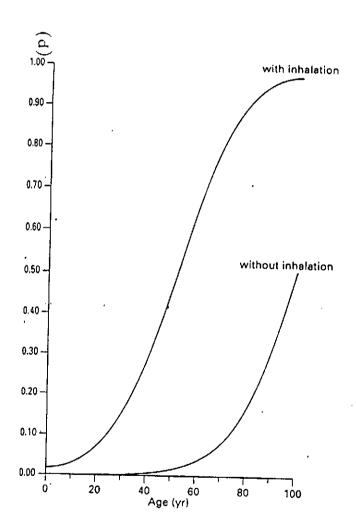
Advances in medical care have changed the principal cause of death in burn patients from burn shock to wound sepsis to pulmonary complications. In the 1940s and 1950s inadequate fluid resuscitation during the immediate hours after a burn injury resulted in 20% to 40% of deaths among burn patients. With the advent of vigorous fluid resuscitation in the 1960s and 1970s, irreversible burn shock has been replaced by wound sepsis as the leading cause of death in the burn population. The development of topical and systemic antimicrobial agents, advances in nutritional support for the hypermetabolic response, and the use of surgical techniques for early burn wound excision have now changed the primary cause of death from wound sepsis to pulmonary sepsis, which often follows an inhalation injury (2).

Yorkshire Regional Burn Center had also reported that the main cause of death had shifted from sepsis in the early 1970s to inhalation injury in the mid 1980s, where septicemia was the cause of mortality in 18.4% and inhalation injury in 8.2% in the period between 1966 and 1971. However, in the period between 1978 and 1983, the causes of mortality had shifted into inhalation injury (26.0%) and septicemia (10.4%) <sup>(7)</sup>.

Now, respiratory complications (inhalation injury, aspiration in unconscious patient, bacterial pneumonia, pulmonary edema, embolism, and pulmonary insufficiency) have emerged as the dominant killer of individuals with major thermal injury. Pulmonary pathology, primarily as a result of inhalation injury, now accounts for 20-84% of burn mortality. So for any

given patient, the presence or absence of inhalation injury may be a stronger determinant of mortality than the size of burn wound <sup>(8)</sup>.

Birmingham Burn Center had confirmed that the approximate mortality probability of a given patient regarding his burn percent and age varies greatly depending on whether he has inhalation injury or not <sup>(7)</sup>. (Fig.1)



(Fig. 1): Mortality probability (P) against age: logistic model with TBS burn (5%), age and inhalation injury (7).

7

Despite recognition of inhalation injury as a major determinant of survival following burns, progress on improving treatment of burn-related respiratory complications has been slow and uneven <sup>(9)</sup>. The major advances in this area over the past two decades have been in the improved ability to diagnose and treat inhalation injury. Fiberoptic bronchoscopy has proven to be an especially useful method for recognizing and grading the severity and treating inhalation injury <sup>(10)</sup>.