بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / مني مغربي أحمد

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

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The Versatility of Usage of Hydrosurgical Debridement in Major Burns

Thesis

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The Versatility of Usage of Hydrosurgical Debridement in Major Burns

ABSTRACT

Background: Burn wound debridement is an important step in management of major burns. There are several techniques of burn wound debridement include surgical, enzymatic, mechanical and autolytic. Hydrosurgical system is an additional type of debridement that preserve viable tissues, create smooth wound bed and decrease bacterial load.

Objective: This study compared the hydrosurgical debridement and traditional surgical methods of debridement of major burns.

Patients and Methods: This study is a prospective and comparative that compared traditional surgical debridement versus hydrosurgical debridement of major burns. This study was conducted between December 2020 to December 2021 at 2 major burn centers in Egypt (Burn unit of Ain Shams University hospital and Armed Forces Burn Center at El Helmia Armed Forces Hospital).

Twenty patients with mixed depth of major burns were divided into two groups. In group I (n=10) debridement done surgically by Watson knife. In group II (n=10) debridement done by hydrosurgical system. Both groups were compared regarding intraoperative blood loos, blood component transfusion, mean number of sessions, mean duration of each session, healing time, risk of infection and Vancover scar scale.

Results: The current study showed that, the estimated blood loss, healing time, blood component transfusion and risk of infection were lower in group II than group I.

Keywords: VERSAJET®, burn debridement, burn excision, wound bed.

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List of Abbreviations

Abb.	Full term
ACS	Abdominal compartment syndrome
AKI	Acute kidney injury
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
ATLS	Advanced Trauma Life Support
BSA	Body surface area
CBC	Complete blood count
CNS	Central nervous system
CT	Computed tomography
ECG	Electrocardiography
GIT	Gastrointestinal tract
Hb	Hemoglobin
IAH	Intraabdominal hypertension
IL-6	Interleukin-6
IQR	Inter-quartile range
IV	Intravenous
MC	Mast cells
MDA	Malondialdehyde
MIF	Migration inhibitor factor
MRI	Magnetic resonance imaging
NF-κB	Nuclear factor κB
NO	Nitric oxide
ROS	Reactive oxygen species
SBI	Severe burn injury

List of Abbreviations Cont...

Abb.	Full term
SIRS	Systemic inflammatory response syndrome
STSG	Split-thickness skin graft
TBSA	Total body surface area
TGF	Transforming growth factor
Th-2	T helper 2
TNF-α	Tumor necrosis factor- α
VAT	Value-added tax
WBC	White Blood Cells
WHO	World Health Organization

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INTRODUCTION

Burn injuries are the fourth most common traumatic injury and cause an estimated 265000 deaths worldwide ***(Bailey et al., 2019).***

Management of burn patients includes several steps starting from the incidence of injury and may be lasting for years. Wound debridement is an initial step in burn management ***(Ziegler et al., 2020).***

It can be made by different methods like enzymatic, autolytic, mechanical, biological and osmotic debridement ***(Legemate et al., 2018).*** It aims to remove the necrotic tissue, reduce the bacterial load, and convert the burn to acute wound that can accept skin graft ***(Edmondson et al., 2018).***

However, this procedure can be painful and nonselective because it may remove healthy tissue. So, hydrosurgical debridement is an innovative tool based on jet of water and on the Venturi effect resulting from it, which is capable of removing the necrotic tissue by suction ***(Barret, 2006).*** Moreover, it is a more selective and less painful procedure with shorter healing time, better tissue contouring and less intraoperative bleeding ***(Legemate et al., 2018).***