

Managing Healing Complications in Burn Patients

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ABSTRACT

Effective treatment of healing in burnt patients is a crucial component of burn care, with significant ramifications for patient outcomes. This bibliographic review article examines the epidemiology, significance, definition, risk factors, complications, and treatment of wound healing in patients with burn injuries. The conversation explores different tactics and progressions in the area, finally highlighting the significance of a holistic approach to healing in patients with burns.

KEYWORDS: Burns, Burned Patients, Wound Healing, Management, Epidemiology, Complications.

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INTRODUCTION

Burn injuries have a significant influence on people, families, and communities globally. The study of the occurrence and distribution of burn injuries not only provides information about how often they happen but also sheds light on their long-term effects. Burn injuries have an impact on individuals of all age groups from an epidemiological perspective. However, there is a greater occurrence of burn injuries among small children and older adults, which highlights their importance as a major public health issue. According to the World Health Organization, burns result in around 265,000 fatalities each year, making them a significant contributor to both mortality and morbidity.

The impact of burn injuries goes beyond mere numbers, as they profoundly disrupt lives and pose significant challenges to the healthcare system. Burn injuries may result in extended hospital stays, expensive surgical interventions, and intricate rehabilitation processes. The effect transcends the physical domain, exerting influence on the psychological and social welfare of patients. The administration of burn injuries and, more particularly, the recuperation of burn wounds, is an essential aspect of burn treatment that necessitates thorough consideration.

The process of recovery in burn victims is a multifaceted journey. The process includes the complex interaction of physiological, metabolic, and immunological mechanisms that aim to repair and restore the integrity and functioning of the skin. The success of this procedure is crucial, not only for

the patient's survival but also for maintaining their quality of life. Efficient healing in individuals with burns may help avoid problems such as infection, scarring, and contractures, which can have a substantial impact on long-term results.

In this bibliographic study, we will examine the theoretical framework that supports the treatment of healing in burnt patients. This encompasses the process of diagnosing burn injuries and analyzing the risk variables that impact the healing process. The discussion will go into the intricacies of complications that might arise throughout the healing process of burn wounds, including infections and scarring. In addition, we will analyze the comprehensive method of controlling the healing process of burn wounds, which includes a range of tactics and the most recent advancements in the area. In conclusion, this conversation highlights the need of adopting a comprehensive approach to the treatment of burn victims, aiming to improve both the lifespan and well-being of persons impacted by burn injuries.

Explanation:

Burn injuries include a range of damage to the skin and underlying tissues caused by exposure to different forms of thermal energy, chemicals, electricity, or radiation. The injuries are often classified into four degrees according to the depth and severity of tissue damage:

First-degree burns specifically target the outermost layer of the skin, known as the epidermis. These burns are identifiable by the presence of redness, discomfort, and some swelling.

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Second-degree burns penetrate the dermis, which is the deepest layer of the skin, and may be classified as either superficial or deep. Superficial second-degree burns are characterized by the presence of blisters, whereas severe second-degree burns have a mottled look and may cause significant discomfort.

Third-degree burns, commonly referred to as full-thickness burns, cause damage to both the epidermis and the dermis. These burns often have a leathery or burnt appearance and may be less painful since the nerve endings have been destroyed.

Fourth-degree burns are the most extreme kind of burns, since they go beyond the skin and impact the underlying muscle, bone, or organs.

The severity and scope of the burn damage are crucial factors in determining the course of recovery and any related problems.

Factors that increase the likelihood of a negative outcome:

Burn Injury Severity: The magnitude and severity of the burn damage are crucial factors in determining the healing process. Superficial burns may heal rapidly and with minimum intervention, but severe burns that include not just the skin but also underlying tissues, such as muscle and bone, need more intricate treatment. Extensive burns that affect a large section of the body might result in systemic reactions, which can complicate the healing process.

Age: The age of an individual has a substantial impact on the process of healing burn wounds. Infants and the elderly are more susceptible. Children in the pediatric population exhibit characteristics such as reduced skin thickness, lower levels of subcutaneous fat, and underdeveloped immune systems, rendering them more vulnerable to fluid depletion and infection. On the other hand, the older population often encounters a delay in the healing of wounds as a result of decreased skin elasticity and weakened immune system.

Existing medical conditions: Having pre-existing medical issues might impede the healing process. Individuals suffering from chronic illnesses such as diabetes or cardiovascular disorders may encounter reduced blood flow and a compromised immune system, which may impede the body's capacity to heal injured tissue.

Risk of infection: Burn injuries result in the removal of the skin's protective layer, leaving patients particularly vulnerable to infections. Microorganisms infiltrating burn wounds may result in infection, impaired wound healing, and the development of biofilms that are resistant to therapy. The presence of the danger of infection highlights the need of implementing strict infection control measures.

When burns are accompanied with inhalation injuries, the treatment of recovery becomes much more intricate. The inhalation of hot gases and smoke may cause harm to the respiratory system, resulting in obstruction of the airways and the development of acute respiratory distress syndrome (ARDS). Managing respiratory issues in conjunction with wound healing presents an extra level of difficulty.

Issues:

Infection: Burn wounds are very susceptible to infection since the integrity of the skin barrier is weakened. Pathogens have the ability to invade and spread through the injured tissue, resulting in the development of cellulitis, creation of abscesses, or even causing infection throughout the body. Effectively managing and avoiding infections are crucial aspects of the healing process for burn wounds in order to prevent potentially fatal outcomes.

Hypertrophic scarring refers to the abnormal healing process that leads to the formation of elevated, red, and thicker scars. These scars may impair functionality and induce discomfort or pruritus, therefore affecting the patient's quality of life. Interventions aimed at mitigating the likelihood of hypertrophic scarring, such as the use of silicone dressings and pressure garments, are vital in the treatment of burn patients to facilitate the healing process.

Contractures occur when scar tissue forms, causing the skin to tighten and limit joint mobility. Contractures may greatly hinder the functional results of burn wound healing. Occupational therapy and physical therapy are often used to alleviate these difficulties.

Psychological discomfort often arises as a result of burn damage. Patients may develop post-traumatic stress disorder (PTSD), sadness, and anxiety as a result of their injuries, the process of rehabilitation, and changes in their physical appearance. Psychosocial assistance is essential for managing the psychological issues that arise throughout the healing process.

Management: The effective management of recovery in burnt patients requires a thorough and interdisciplinary approach: Wound debridement is crucial for effectively eliminating necrotic tissue and creating a healthy wound bed. Surgical debridement, enzymatic debridement, or autolytic debridement are used depending on the patient's condition. Stringent infection control procedures, such as the use of antimicrobial agents, sterile dressings, and isolation precautions, are crucial in order to avoid infections that may hinder the healing process.

Nutritional Support: Burn patients often undergo hypermetabolism, necessitating heightened caloric consumption and targeted nutritional therapies to bolster the healing process. Enteral or parenteral nutrition may be required, with an emphasis on protein and vitamin supplements.

Burn-Specific Wound Care Products: Progress in wound care has led to the development of specific dressings, including silver sulfadiazine, honey-based dressings, and biologic dressings. These items facilitate the creation of an ideal environment for the process of wound healing.

Surgical procedures: In situations of extreme severity, surgical treatments are essential. These treatments may include skin transplants, which involve the transplantation of healthy skin to cover burn sites, or tissue expansion procedures that promote the creation of new skin.

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The treatment of healing in burnt patients is a constantly changing and developing area, influenced by scientific progress and cooperation across different disciplines. In this bibliographic review, we will examine new advancements

and approaches that attempt to improve the healing process in burn patients, leading to better outcomes and quality of life for people impacted by burn injuries.

Analysis:



Figure 1. Deep second degree ignition burn, third degree patches



Figure 2. Treatment with grafts, mastrix washes and silver patches. Management at 2 months.



Figure 3. Management with mesh grafts, dermal matrices, surgical washes. At 4 months post treatment

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Progress in the field of burn management:

In recent years, there have been notable advancements in the field of burn care, namely in the area of wound healing. Advancements in wound care products and practices have enhanced the overall approach to healing in individuals with burn injuries.

Silver sulfadiazine is a crucial component in the treatment of burn wounds. This drug is a topical antibacterial that aids in the prevention of infections and facilitates the process of healing. In addition, honey-based dressings have garnered interest because of their inherent antibacterial qualities and ability to expedite wound healing. Biologic dressings obtained from human or animal sources have shown potential in enhancing wound healing by providing a biologically active framework for tissue regeneration.

Tissue engineering has significant promise for burn wound healing. Bioengineered skin replacements, such as cultured skin grafts and tissue-engineered dermal matrices, provide a promising approach to replace injured skin. These replacements strive to not only repair the physical structure of the skin, but also enhance its functional characteristics, hence enhancing the healing process and reducing the occurrence of issues like as scarring and contractures.

Psychosocial Factors: The mental and emotional health of burn victims is a crucial aspect of the healing process. Burn injuries may result in significant psychological anguish, manifesting as symptoms of anxiety, sadness, and post-traumatic stress disorder (PTSD). Psychosocial help and counseling are crucial in this particular environment. Psychiatrists and psychologists play a vital role in assisting patients in managing the psychological difficulties linked to burn injuries, facilitating their healing process and successful reintegration into their everyday routines.

Holistic Care: Holistic care for burnt patients include more than just addressing their physical and psychological needs. It takes into account the patient's social, cultural, and economic circumstances. Rehabilitation, which encompasses physical and occupational therapy, is crucial in the process of recovering functioning and improving the quality of life for those who have survived burns. Moreover, it is crucial to provide patient and family education to ensure their comprehension of the wound care regimen, adherence to follow-up sessions, and recognition of the need of continuous self-care.

Prospects for the future:

The field of burn wound healing is constantly changing, thanks to continuing research and clinical studies. Innovative methods, including as stem cell treatment and regenerative medicine, provide potential for improving the results of burn patients by stimulating tissue regrowth and reducing complications.

Moreover, the concept of individualized medicine in burn treatment is gradually gaining recognition as a possible transformative change. Optimizing healing results may be

achieved by customizing therapies according to specific patient features, genetics, and wound profiles.

Researchers are now investigating novel antimicrobial medicines, wound dressings, and preventative methods to decrease infection rates in burn patients, emphasizing the importance of infection management.

CONCLUSION

The treatment of healing in burnt patients is an intricate and diverse process, including risk factors, complications, and novel solutions. Advancements in wound care, tissue engineering, and psychological support have greatly improved the results for those with burn injuries. A thorough recovery may be achieved by adopting a holistic approach that takes into account the physical, psychological, and social elements of treatment.

Continuing research and breakthroughs in burn wound healing provide optimism for improved results in the future. The dedication to addressing the unique requirements of every patient, while always striving to improve care and reduce problems, highlights the significance of a multidisciplinary approach in the treatment of healing in burnt patients.

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