

Key Advancements in The Treatment Strategies To Accelerate Wound Healing

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ABSTRACT

For the treatment of both acute and chronic non-healing wounds, a wide range of dressing procedures and supplies are available. In both scenarios, the main goal is to obtain a healed, closed wound. In a chronic wound, however, the dressing may be used to prepare the wound bed for additional surgical procedures such as skin grafting. A suitable dressing medium can help to speed wound healing while also reducing protein, electrolytes, and fluid loss, as well as reducing discomfort and infection. The current dictum encourages the use of wet wound treatment. This is in stark contrast to the previous technique of wound care by exposing the wound and allowing it to dry. When faced with a wound, choosing a suitable dressing material can be a difficult task for any practitioner. Since wound care is constantly changing and new drugs are launched onto the market on a regular basis, it's important to stay up to date on their impact on wound healing. The significance of assessing the wound bed, the amount of drainage, the depth of injury, the presence of infection, and the wound's location is emphasized in this report. These features can aid every clinician in determining which substance to use and when in order to achieve optimum wound healing. There are no such things as "magical dressings". Apart from addressing the root cause, dressings are a vital factor that facilitates wound healing, and other supporting steps such as diet and systemic antibiotics must be given equal consideration..

Keywords: Moist healing, Topical wound care, Wet dressing's antiseptics; Contamination; Critical colonization; moist dressing

INTRODUCTION

A state in which the body is being injured, that condition typically involves slashing of the skin membrane or breakage in the underlying tissue of the skin is termed as Wound. Development of wounds from skin to any part of the body organs will automatically affect the functioning of organs and will be highly prone to other health issues or complications. In order to restore the damage of the skin there are several molecular and cellular events occur in a pattern for the purpose

of tissue repair and regeneration of the affected part. Considering the complexity and the unhealthy nature, the wounds of diabetes are a very important to be taken care of. For timely treatment infection should be controlled, removal of debridement must be done. However, wound severity and treatment action are actually depends on the approach and diagnosis of types of wound.

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Received: May 11, 2021; **Accepted:** June 30, 2021; **Published:** July 07, 2021

Citation: Shyam B (2021) Key Advancements In The Treatment Strategies To Accelerate Wound Healing. *Anat Physiol* 11:360.

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PHASES OF WOUND HEALING

The biological process of wound healing in the living body takes place through highly programmed and sequential phases that are:

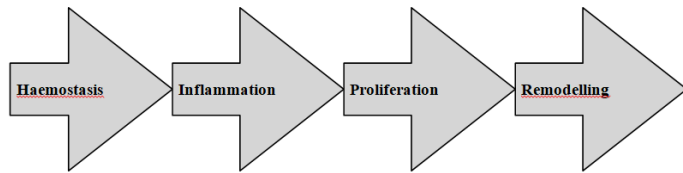


Figure 1: Stages of wound healing.

Wound care practice has tremendously improved and evolved over the years. For 2000 years, the wound care management focused on the drying of the affected site with the help of absorptive gauzes, but these absorptive gauzes have limitations that it causes pain and damage to the wounds (Neo-epithelium) during removal [1]. It is being observed that the epithelialization of the closed wounds requires less time than open wounds exposed to air, as the events like proteinases, chemotactic, complement, and growth factors are in contains exposure in closed dressed wounds. In the recent advancements the wounds are being dressed up in such a fashion that it speeds up the healing process by the stimulation of synthesis of collagen, re-epithelialization, the wounds are provided with the hypoxic conditions to promote angiogenesis and this also decreases the infection over the wound. The idea of modern treatments has the purpose to improve the wound environment for the acceleration of wound healing. However, during the establishment of wound management, the basic principles must be kept in mind and no modern therapeutics must be taken as universal treatments [2]. Full-thickness, or secondary therapy, is the best form of treatment when an injury penetrates all layers of the skin and / or underlying tissues. If a physician tries to close the wound with some significant depth in advance (before the entire granulation process takes place), the patient may have an ulcer. Wounds heal due to granulation tissue and when the contraction of wound edges takes place. They have scar tissue formed and are not the same as tissue before tissue Injury. Patients need to understand that although their wounds heal after being completely covered, only 80% of their tissue strength is present. It is important to understand that patients are always subject to future degeneration in the same area (Figure 2) [3].

CHRONIC WOUNDS- CAUSES TO CARE APPROACHES

The risk of the development of diabetes in children who are born in 2000 is estimated to be as high as 35% and the unpredictable risk of diabetes and the non-healing chronic wounds which can be age associated also are increasing drastically. The chronic wounds begins with minor injuries like insect bites, scratches on the dry skin, which takes few days to heal up but in case like patients suffering from Diabetes-induced or non-diabetic neuropathies , takes weeks and thus leads to the formation of non-healing wounds. The

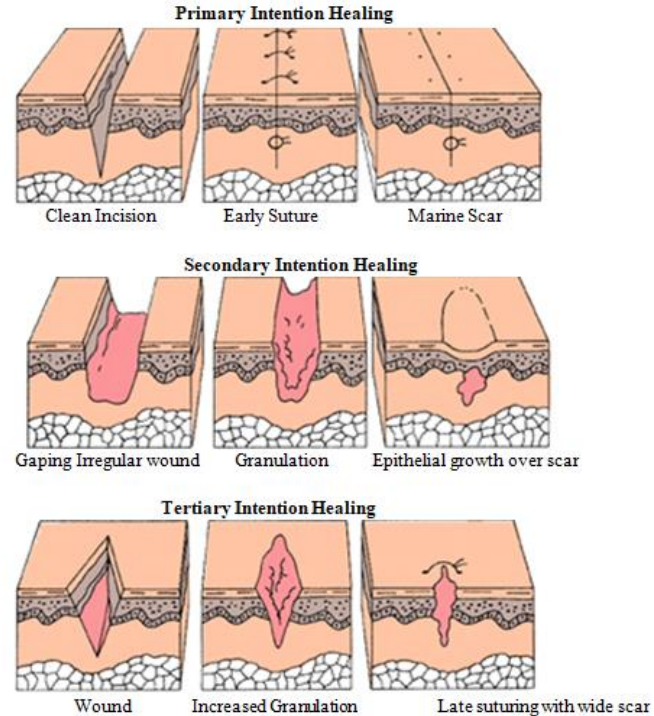


Figure 2: Diagrammatic representation of primary, secondary and tertiary intention wound healing.

Chronic wounds are being classified as (the venous and arterial ulcers) vascular, pressure and Diabetic ulcers. Few general features like extended inflammatory phase, continuously happening infections, the lack of ability of skin cells to repair and respond to stimuli etc. are which are shared by all types of chronic wounds. This all of those results in failure to heal up the wounds [4-14].

CONCLUSION

The general process of wound healing can be divided into 4 distinct stages: coagulation, inflammation, granulation tissue formation (proliferative stage), and remodeling or scar formation. Finally, extra cellular Matrix regeneration and cell death lead to the formation of red tissue with body structures that can be compared to the underlying skin. Chronic wounds are classified by vascular, diabetic, and pressure ulcers. Most chronic wounds are distinguished by a phase of chronic or excessive inflammation, persistent infection, and a failure of dermal or epidermal cells to respond to the inflammatory stimulant. Infection, especially in the form of biofilms, is a major cause of illness, morbidity and mortality. Methods designed to detect and prevent biofilm formation can lead to the transformation of chronic wound care. How to do many things according to the current comprehension of wound healing methods and known by the abbreviation TIME is used for the treatment of most acute and chronic wounds. Removal of non-removable tissue (removal from the dead part) is essential for the successful treatment of acute and chronic wounds. Enzymatic removal of dead part using bacterial collagenase removes non-renewable tissue and promotes, angiogenesis, epithelialization and wound healing process is promoted. Ultimately, infection control can be carried through the use of antibacterial, antiseptics and systemic antibiotics. Advanced techniques such as silver-containing dressings and photodynamic treatment eliminate drug- biofilm and resistant bacteria. The wound care field is constantly evolving with advances in technology. While there is still no substitute for rehabilitation using patient tissues and carefully thought-out regeneration procedures; new products can help facilitate final healing by providing prophylaxis against healing barriers, the addition of wound healing features, help with time checking and closing time for clear remediation, and

Improving the overall effects of wound reconstruction. Investigators have developed a 3D printer that incorporates skin cells into wounds. Bio-printed cells improved wound treatment for three to four weeks compared to wounds that could be treated or treated with a matrix. Investigators combined animal data to submit an IND application for clinical trials. At this time, the biofoam is still under research. Catchmark and Armen are working on a grant from the U.S. Army Medical Research and Development Command to conduct information studies on live animals. Their hope is to produce a foam pack that can be easily carried and used in the field by emergency responders and military medicine.

14. Attinger CE, Janis JE, Steinberg J, Schwartz J, Al-Attar A, Couch K. Clinical approach to wounds: debridement and wound bed preparation including the use of dressings and wound-healing adjuvants. *Plast Reconstr Surg.* 2006;117(7 Suppl):72S–109S

REFERENCES

1. Eming SA, Krieg T, Davidson JM. Inflammation in wound repair: molecular and cellular mechanisms. *J Invest Dermatol.* 2007;127:514-25.
2. Pardes JB, Takagi H, Martin TA, Ochoa MS, Falanga V. Decreased levels of alpha 1(I) procollagen mRNA in dermal fibroblasts grown on fibrin gels and in response to fibrinopeptide B. *J Cell Physiol.* 1995;162(1):9-14.
3. Higley HR, Ksander GA, Gerhardt CO, Falanga V. Extravasation of macromolecules and possible trapping of transforming growth factor-beta in venous ulceration. *Br J Dermatol.* 1995;132:79-85.
4. Walker DJ. Venous stasis wounds. *Orthop Nurs.* 1999;18(5):65–74. 95.
5. Bonham PA. Assessment and management of patients with venous, arterial, and diabetic/ neuropathic lower extremity wounds. *AACN Clin Issues.* 2003;14:442–56.
6. Moffatt CJ, Franks PJ, Hollinworth H. The properties of Hydrogel dressings and their impact on wound healing. *Prof Nurse.* 2004;19:269–73.
7. Burgess AR, Poka A, Brumback RJ, Flagle CL, Loeb PE, Ebraheim NA. Pedestrian tibial injuries. *J Trauma.* 1987;27:596–604.
8. Defloor T. The risk of pressure sores: a conceptual scheme. *J Clin Nurs.* 1999;8:206–16.
9. Falanga V. Wound healing and its impairment in the diabetic foot. *Lancet.* 2005;366:1736–43.
10. Ben-Porath I, Weinberg RA. The signals and pathways activating cellular senescence. *Int J Biochem Cell Biol.* 2005;37:961–76.
11. Schultz GS, Sibbald RG, Falanga V, et al. Wound bed preparation: a systematic approach to wound management. *Wound Repair Regen.* 2003;11(Suppl 1):S1–28.
12. Tomic-Canic M, Ayello EA, Stojadinovic O, Golinko MS, Brem H. Using gene transcription patterns (bar coding scans) to guide wound debridement and healing. *Adv Skin Wound Care.* 2008;21:487–92.
13. Ayello EA, Cuddigan JE. Debridement: controlling the necrotic/cellular burden. *Adv Skin Wound Care.* 2004;17:66–75.