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Introductory Chapter: An Overview of Wound Healing

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<http://dx.doi.org/10.5772/intechopen.84494>

1. Introduction

Wound is the deterioration of the normal integrity of the body by the physical damage of any agent. Erosion, ulcer, and fissure expressions are used in wound statement. Erosion is an expression that determines the focal epidermis losses that do not go into the dermis. Fissure is the tissue loss that determines vertical fractures in the form of cracks and it can hold the epidermis and/or dermis. Ulcers are focal wounds with the dermis and tissue loss in the epidermis. Ulcers may become chronic and may cause difficult treatment for clinicians. The wound healing progress depends on many factors ranging from the general condition of the patient to the treatment and the cause of the wound. Wound healing, complications, and scar development include multifactorial and highly complex pathophysiological components.

One of the results of advances in medical technology is increased longevity; associated with this is an increased prevalence of chronic diseases and consequently chronic wounds. There is a need to provide an evidence-based approach to the management of chronic wounds. The amount of knowledge about the processes of wound healing has significantly increased in recent years. It has become more difficult to select the most appropriate therapy for a specific type of wound. Wound healing overlaps into the many disciplines of medicine in general. Dermatologists, surgeons, internists, and geriatricians are becoming increasingly involved in the field of wound care. General practitioners and family physicians are frequently required to treat acute and chronic wounds.

There are two types of wounds: acute and chronic. After trauma or excisional surgery, acute wounds result. If the wound does not heal within 6 weeks, it is chronic. The factors such as involvement of underlying structures, depth of wound, primary wound care, and tissue use are effective in chronic wound formation. The main reason is inadequate circulation in all of the circumstances. Infection; trauma; thermal, chemical, and electrical burns; foreign bodies; postoperative dehiscence; diabetic ulcers; pressure sores; and trophic changes following spinal injury are common etiologies [1]. There are regeneration and tissue repair processes

involving a number of molecular and cellular events for the reconstitution of damaged tissue. The exudative, proliferative, and extracellular matrix remodeling phases are sequential events that occur during wound healing. These events involve soluble mediators, blood cells, and parenchymal cells. Tissue edema develops after injury. In the proliferative stage, the area of tissue injury is reduced by fibroplasia and contracting myofibroblasts. Angiogenesis and reepithelialization may still be observed at this stage. Endothelial cells can differentiate into mesenchymal components. A set of signaling proteins are reported to have role in this process [2]. Chronic wounds are a major health problem. There are several local and systemic factors that affect wound healing. Management of a patient with a chronic wound requires close cooperation of physicians and other healthcare workers from related departments. Wound assessment is vital for evaluating the effectiveness of planned treatment in chronic wounds. Accurate and comprehensive wound assessment depends on meticulous and consistent clinical observation and on the use of quantitative measurement methods.

The most important point in the treatment of chronic wounds is to determine the causes of the wound, if possible, to eliminate the causes and to provide a suitable environment for the wound healing mechanisms of the body to work. In order for a wound to heal, there should be no circulatory problems in the area of the wound, and there should be plenty of clean blood flow, elimination or reduction of the discharge of the wound, removal of the wound, and pressure of the wound (if it is pressured, pressed, or pressed by any object such as shoes). Dead tissue and foreign bodies in the wound should be removed. Chronic wounds can be treated by conventional treatment methods. However, this may prolong the treatment period or make it difficult. The modern wound care products used today eliminate the deficiencies in the wound healing process and accelerate the healing by correcting the healing stage where the wound is inserted. A majority of these products are tools and equipment that helps in healing. These products allow the wound to heal in a shorter time and with minimal cosmetic loss. These products provide a moist environment for wound healing, prevent and treat infection, control discharge, and reduce the odor and pain caused by the wound. They reduce the frequency of dressing and provide acceptable esthetic appearance and functionality by the patient in their daily life. Although at first glance the unit costs may seem high, they reduce the total cost of treatment by reducing infection and shortening the wound healing time.

There are many publications about wound healing, but this book intends to give an overview of the current perspectives on wound healing, to be useful to practice care in wound healing and for improving the quality of life. It is considered that this book will be useful for clinicians who are interested with wound care. I gratefully acknowledge the help and support of the authors from five continents and nine countries of the world who contributed to this book.

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