A Monograph for Health Care Providers

Pressure Ulcers

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No one knows precisely how many Americans develop a pressure ulcer each year. A 1999 study estimated that 1.6 million patients acquired a pressure ulcer as a result of hospitalization, which means that the incidence in the United States is at least 2 million annually when long-term care is added. Pressure ulcers increase a hospital stay by a factor of five and cost from $2,000 to $70,000 to heal at a cost to the nation of $11 billion.

Pressure ulcers are an area of localized damage to the skin and underlying tissue caused by unrelieved pressure. When pressure is applied to the skin over a bony prominence, the pressure is transmitted in a narrowing cone down to the muscle layer and ischemia occurs, which leads to muscle necrosis. The greatest damage is usually deep within the tissue next to the bone, thereby making the outward appearance of a pressure ulcer deceptive. This phenomenon is termed deep tissue injury. Certain pressure ulcers can also be caused by the action of shear forces acting in concert with pressure on fragile skin.

The management of these wounds requires a comprehensive approach to treatment. This approach is proven to heal these ulcerations quickly and reduce the incidence of infection and recurrence. Thus a comprehensive approach substantially reduces the cost burden to those individuals with pressure ulcers.

Appropriate Treatments Options

Pressure ulcers have a significant impact on quality of life. The management of pressure ulcers involves treating the cause, optimizing local wound care, and addressing patient centered concerns. The most important aspect of treatment is offloading the affected tissue.

Other components of successful management include medical management and infection control. Select patients may respond to surgery, adjunctive therapies, and lifestyle enhancements.

Why a Comprehensive Approach?

By the time inflammation is visible at a pressure ulcer site, necrosis of muscle, fat and subcutaneous tissue may have already occurred. This fact alone demands immediate measures to maintain and improve tissue tolerance to pressure in order to prevent further injury. An understanding of the pathophysiology of pressure ulcerations has led to the development of new approaches, thereby providing greater choices in their management. These new approaches require the use of proactive measures and a comprehensive approach to aggressively treat these wounds. Pressure ulcers are associated with poor outcomes, infections, prolonged healing, and in select cases amputations. It is essential that these patients receive appropriate care and lifestyle education early in treatment. An aggressive and coordinated approach can save limbs, improve function, and enhance quality of life:

- Complete assessment
- Management of bacterial colonization and infection
- Management of tissue pressure load
- Debridements/surgical repair as needed
- Appropriate topical wound care
- Nutritional assessment and support
- Patient and family education

Advanced Technologies

Several advanced technologies are available for use in treating pressure ulcers including but not limited to:

- Negative Pressure Wound Therapy: removes excess fluid and infectious material while promoting granulation tissue formation, reducing the time to complete healing.
- Tissue-Engineered Skin Substitutes: engineered skin products advance wound healing by using living cells to promote healing.
- Regenerative Tissue Matrix: supports cell repopulation with stem cells by providing a framework for tissue regeneration.
- Biological Membranes: add growth factors and promote wound healing by stimulating cell migration to the ulcer site.
- Matrix Dressing: promotes healing by controlling matrix metalloprotease and growth factor activity; thereby reducing healing times and pain levels.
- Silver Dressings: are bactericidal to 150+ different pathogens and reduce the level of matrix metalloproteases within the wound fluid matrix, thereby reducing infections, inflammation and pain.
- Reconstructive Surgery: surgical repair depends on the location of the ulcer and rehabilitative promise of the patient. Operative procedures include direct closure, skin grafting, skin flaps, musculocutaneous flaps, and free flaps.

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