Management of Partial-Thickness Burns Using MEDISKIN® or E•Z DERM® Porcine Xenograft

General Information:

Partial-thickness burn wounds involve the deeper layers of the epidermis and upper layers of the dermis and may be either superficial or deep. Superficial partial-thickness burns are characterized by erythema, blister formation, edema and pain. This type of injury should heal spontaneously within 7-10 days.

Deep partial-thickness burns appear marble-white and edematous and result in destruction of the epidermis and upper layers of the dermis. Skin appendages, i.e. sweat glands, hair follicles, and sebaceous glands remain intact. These wounds may heal without grafting with epithelium from the skin appendages and wound margins spreading to cover the wound surface. Autografting may be indicated depending on severity.

General Principles of Wound Management:

Wound closure is the most important principle for management of the burn-injured patient. Successful closure of the burn wound directly reflects proper wound therapy. Because partial-thickness burn wounds heal by migration and proliferation of epithelial cells, it is necessary to provide an environment to facilitate this response. Expeditious wound coverage with a biologic cover of porcine xenograft creates this environment and also aids in protection against bacterial invasion and evaporative water loss. Porcine xenograft coverage also reduces the pain associated with partial-thickness injuries.

Blisters are also a biologic cover; however, if the blisters should burst or are removed, prompt coverage with porcine xenograft will provide the same protection as an intact blister allowing the wound to heal in about one week.

Application:

1. Prepare the partial-thickness burn wound by removing blisters, eschar, dead or necrotic tissue and foreign debris. Achieve hemostasis and remove any superficial blood clots. Cleanse wound and rinse thoroughly with sterile saline. (For maximum benefit apply porcine xenograft in the first 24 hours after injury has occurred).
2. Using aseptic technique, remove product from package and separate from gauze liner. If using Mediskin, thaw according to package directions and apply dermal surface toward the wound. If using E•Z Derm, apply either surface to the wound.

3. Smooth porcine xenograft into place to ensure intimate contact with the wound. Avoid any wrinkling or creasing of the product. Overlap adjoining pieces of porcine xenograft and healthy tissue surrounding the wound to provide total wound coverage.

4. Surgically fix porcine xenograft to the burn wound as appropriate.

5. Protect the wound from movement immediately after application to allow porcine xenograft to adhere or stick to the wound.

6. Inspect the wound in 24 hours to determine if the porcine xenograft has adhered to the wound (remove protective dressing and gauze carefully). Adherent porcine xenograft will remain in place under mild digital pressure. If adherent, **LEAVE IN PLACE**.

7. If porcine xenograft has not adhered to the wound, remove loose product, re-cleanse the wound, rinse with sterile saline and apply new porcine xenograft.

8. If only small isolated areas of porcine xenograft have not adhered, carefully cut away the non-adherent areas, or lance the site and roll out any exudate with a cotton swab. Cleanse the area and apply new porcine xenograft.

9. Continue to inspect the wound every 24 hours and repeat steps 7 or 8 until adherence occurs.

10. Porcine xenograft will separate from healing areas as re-epithelialization occurs. Trim away loose, dry product to prevent the disturbance of the remaining healing wound. Porcine xenograft should detach completely from a partial-thickness wound in 7-14 days.

**Key Points and Clinical Tips**

1. Many clinicians have found that perforated porcine xenograft often works best during the 12-48 hours post-burn. This allows excessive wound exudate to evaporate at a controlled and conservative rate.

2. Most partial-thickness burns treated promptly with porcine xenograft will heal with only one application of the product. Porcine xenograft will naturally slough from the injured area as epithelium is regenerated. Dry, non-adherent product indicates healing beneath these areas and it should be trimmed away.
3. Wounds not treated within 48 hours post burn may develop an exudative crust that must be removed. Upon removal, topical antimicrobials, when indicated, can be instituted 24-48 hours before application of porcine xenograft.

4. Failure of porcine xenograft to adhere to the wound may indicate presence of infection, excessive drainage from the wound or that the wound bed contains necrotic nonviable tissue. If porcine xenograft has not begun to adhere after 48 hours and/or 4-5 changes, wound cultures may be taken to monitor the status of the burn wound. Topical antimicrobials can be instituted if cultures indicate such therapy. Porcine xenograft can be reinstated 2-3 days after using a topical agent.

5. Patients can be ambulated and bathed according to standard protocol once the porcine xenograft is adherent.

6. Porcine xenograft may be covered with a nonstick dressing (i.e. Telfa®) to minimize adherence of the outer dressing to the porcine xenograft.

7. Large sheet grafts, 7” x 18” are available. Perforated and non-perforated product is available.

**Contraindication**

Mediskin or E•Z Derm porcine xenografts should not be used on patients with known sensitivity to porcine products, patients with a history of multiple or serum allergies or on wounds with large amounts of eschar.

Any allergic reaction unrelated to other therapies is an indication for removal of the porcine xenograft.

**Storage of Porcine Xenograft**

E•Z Derm can be stored at room temperature for 18 months from the date of manufacture. The refrigeration of E•Z Derm is acceptable.

Mediskin must be kept frozen at a temperature range of less than 14° F to –13° F. You may thaw Mediskin at room temperature (normally 1-2 hours) or submerge unopened in warm water (3-5 minutes). Freezer shelf life of Mediskin is 24 months from the date of manufacture.