Evidence-based Topical Treatment Strategies for Pressure Ulcers

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Training Objectives

• Discuss when debridement of pressure ulcers is necessary and the different methods of wound debridement
• Describe signs and symptoms of pressure ulcer infection and treatment options
• Define effective topical treatment strategies for pressure ulcers

Pressure Ulcers

A pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear.

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Pressure Ulcers

Pressure Ulcer Prevention & Treatment Interventions

• Do a new comprehensive risk assessment
• Complete a new tissue tolerance assessment and implement turning and repositioning
• Start wound care documentation
• Review interventions of:
  – Nutrition Referral
  – Therapy referral
  – Support Surface (bed and Wheelchair)
  – Heel Elevation
  – Incontinence care, etc.
• Update physician and family and plan of care
Topical Treatment

Topical Treatment tips

- All wounds should be cleansed/irrigated with each dressing change
- Normal saline is the preferred cleansing agent, because it is physiologic and won’t harm tissue and adequately cleanses most wounds
- Use safe and effective ulcer irrigation pressures range from 4 to 15psi (8psi is achieved with a 35-mL syringe and 19-gauge angiocatheter)

Topical Treatment

Topical Treatment Tips (continued)

- Wounds with adherent materials may benefit from the use of commercial wound cleansers that do not contain harmful chemicals
- *Note: However, commercial wound cleansers do NOT require FDA approval
- Do NOT use topical antiseptics: Dakins solution, povidone iodine, iodophor, hydrogen peroxide, acetic acid
- Products containing silver can help reduce bacterial loads

Topical Treatment

• Wound Debridement:
  - Removal of devitalized tissue is considered necessary for wound healing
  - Exception: Stable heel ulcers with a protective eschar covering with no signs or symptoms of edema, erythema, fluctuance, or drainage, do NOT need debridement

Topical Treatment

• Wound Debridement (continued)
  Select the method of debridement most appropriate to the resident’s condition and goals

• Autolytic: Allows autolysis of devitalized tissue by providing a moist environment
  - Advantage: selective and safe
  - Disadvantage: slow
Topical Treatment

• Wound Debridement (continued)
  – Enzymatic: Debrides wound by applying topical agents to devitalized tissues on wound surface.
  – Santyl – Collagenase, works best in a PH of 6-8, eschar needs to be penetrated first, Polysporin powder if suspected infection and PH out of range
    • Advantage: Selective
    • Disadvantage:
      – Must be used per manufactures directions
      – Do Not use Silver Dressings/Products with Santyl

Topical Treatment

• Wound Debridement (continued)
  – Medical grade honey
    – Active leptospermum honey
    – May promote debridement
    – Comes in multiple dressing types

Topical Treatment

• Wound Debridement (continued)
  – Mechanical: Use of wet-to-dry, hydrotherapy and wound irrigation to remove devitalized tissue
    • Disadvantage: non-selective, painful and can lead to excessive bleeding
    • NOTE: A wet-to-dry dressing should be used for debridement purposes ONLY

Topical Treatment

• Wound Debridement (continued)
  – Sharp/Surgical: Involves the use of a scalpel, scissors, or other sharp instrument to remove devitalized tissue
    • Advantages: should be used on infected wounds/osteomyelitis needing immediate debridement
    • Disadvantages: must be performed by appropriately licensed/trained individual, may require hospitalization

Topical Treatment

• When the edges of a wound appear “rolled” under and the wound is no longer showing signs of healing, debridement of the wound edges is necessary to stimulate healing.
  – This should be done by a physician or trained professional utilizing a silver nitrate stick.
• Callused edges also need debridement by trained physician
Topical Treatment

• Contamination vs. Infection:
  – All chronic wounds are contaminated/colonized
  – Contaminated/colonized wounds heal
  – Infection delays healing

Topical Treatment

• Signs of Infection:
  – Lack of healing
  – Induration
  – Purulent exudate
  – Erythema
  – Edema
  – Erythema and Induration >2cm
  – Sudden onset or increase of pain
  – Increased WBC
  – Fever
  – General malaise
  – Suspect osteomyelitis if bone is visible or palpable & wound not healing (MRI/Biopsy)

*Note: One or all may be signs of infection

Topical Treatment

• Cultures
  – Levine Surface Swab
  – Aspiration
  – Tissue Biopsy

Infection is considered when the culture contains 100,000 (10^5) or greater micro-organisms per gram of tissue

Topical Treatment

• Treating Infection
  – Consider 2 week trial of topical antibiotics for wounds with only clinical signs of local infection
  – Institute appropriate systemic antibiotic therapy for residents with bacteremia, sepsis, cellulitis, or osteomyelitis
  – Products containing SILVER can help reduce bacterial load. Good for prevention, but once infected need to treat with antibiotics.

Topical Treatment

• Topical Dressings
  – Understand major categories of dressings
  – No one dressing will work with all wounds
  – Wound Characteristics should be assessed to determine treatment
  – As the wound changes so will your topical treatment
  – Write Physician order with the category of the product only, when possible
Topical Treatment

• Dressings for DRY wounds
  – Transparent Films
  – Hydrocolloids
  – Hydrogels

Treatment for DRY Wounds

• Transparent Film Examples:
  – Opsite (Smith & Nephew, Inc)
  – CarraFilm (Carrington Laboratories, Inc)
  – BliisterFilm or Polyskin (Kendall)
  – Tegaderm (3M Health Care)
  – Mefilm (Moinlycke Health Care)
  – Comfeel Film (Coloplast Corp)

Topical Treatment: Dry Wounds

• Transparent Films (moisture-vapor permeable)
  – Indications:
    • Minimally draining wounds, stage II & on shallow stage III & IV
    • May be used in combination with other dressing as a cover
    • Promote autolytic debridement
  – Precautions:
    • Do not use on moderate to heavily draining wounds, cavities or sinus tracts unless as a secondary dressing
    • infected wounds, 3rd degree burns, or fragile peri-wound skin
  – Frequency: Change only q5-7 days if possible

Treatment for DRY Wounds

• Hydrocolloid Examples:
  – DouDerm & CombiDerm (Convatec)
  – Replicare & Cutilnova (Smith & Nephew, Inc.)
  – Comfeel (Coloplast Corp)
  – 3M Tegasorb Hygrocolloid Dressing (3M Health Care)
  – CarraColloid (Carrington Laboratories)
  – NU-DERM (Johnson & Johnson)
  – Ultec (Kendall)
  – Restore (Hollister Incorporated)
Topical Treatment: Dry Wounds

- **Hydrocolloid Dressings**
  - **Indications:**
    - Stage I (protection), II, or shallow stage III or IV wounds with minimal to moderate drainage
    - May used in combination with other dressings as a cover, only if it can stay on 3 or more days
    - Wounds exposed to urine or feces
  - **Precautions:**
    - Do not use on infected, heavily exudating, tunnels/cavities, fragile peri wound skin and 3rd degree burns
    - May contribute to hypergranulation, macerated peri wound and odor
  - **Frequency of Change:**
    - Q3,5 or 7 days if possible

Treatment for DRY Wounds

- **Hydrogel Examples:**
  - Tegagel (3M Health Care)
  - Saf-Gel (Convatec)
  - Restore Hydrogel Dressing (Hollister Incorporated)
  - Hypergel (Moinlycke Health Care)
  - Solosite, TransiGel or IntraSite (Smith & Nephew, Inc.)
  - Carrasyn (Carrington Laboratories, Inc.)
  - Curasol (Healthpoint)
  - Curafil (Kendall)

Topical Treatment: Dry Wounds

- **Hydrogel (gels, impregnated gauze or sheets)**
  - **Indications:**
    - Stage II, III, or IV wounds with minimal or no drainage
    - Appropriate for wounds with necrosis/eschar for autolytic debridement
    - May be used in conjunction with other dressings
  - **Precautions:**
    - Do not use with draining wounds or alginates
    - Assess surrounding skin for maceration
  - **Frequency:**
    - qd to 3 times per week depending on type

Topical Treatment

- **Dressings for wounds with DRAINAGE**
  - Foam
  - Alginates

Treatment for Draining Wounds

- **Foam Dressing examples**
  - Allevyn (Smith & Nephew, Inc.)
  - 3M Foam Dressing (3M Health Care)
  - Biatain Foam Dressing (Coloplast Corp)
  - Carrasmart (Carrington Laboratories, Inc)
  - Curafilm or Hydrasorb (Kendall)
  - Lyofoam (Convatec)
  - Tielle Hydropolymer Dressing (Johnson & Johnson)

Treatment for Draining Wounds

- **Foam Dressings**
  - **Indications:**
    - Stage I (protection), II, III, & IV wounds with moderate to heavy exudate
    - Can be used as a secondary dressing
    - Use non-adhesive form with fragile peri wound skin
  - **Precautions:**
    - Do not use with non-draining wounds
  - **Frequency:**
    - qd to qod depending on drainage
Treatment for Draining Wounds

• Alginate Examples:
  – Sorbsan (Bertek Pharmaceuticals)
  – Kaltostat (Convatec)
  – AlgiSite (Smith & Nephew, Inc.)
  – Curasorb (Kendall)
  – CarraSorb (Carrington Laboratories, Inc)
  – NU-DERM (Johnson & Johnson)
  – Restore CalciCare (Hollister Incorporated)

• Alginates
  – Indications:
    • Stage II, III, & IV with heavy drainage
    • Can be used on contaminated or infected wounds
  – Precautions:
    • Do not use on non-draining wounds
    • Do not over pack
  – Frequency:
    • Typically qd depending on drainage

Chronic Wounds

• Chronic Wounds
  – Rule out infection/biofilms
  – Need for debridement
  – Rolled wound edges
  – High proteases
  – Promote circulation
• Honey
• Collagen and Cellulose dressings
  (Promogran, Prisma, Puracol Plus, BioBrane, Cade Sorb Ph)

Topical Treatment Exercise

How would you treat:

– A stage II wound with no drainage and 100% granulation tissue on the sacrum of a resident incontinent of bowel and bladder?

– A left heal ulcer with 100% eschar cover and no S/S of infection?

– A stage III wound on the left hip that is 100% granulation with no drainage and 1.5cm deep

Chronic Wounds

• Adjunctive Therapies
  – Electrical Stimulation
  – Hyperbaric Oxygen
  – V.A.C.
  – Ultrasound (MIST)
  – Electromagnetic (PEMF)
  – MIRE Infrared
  – Growth Factors (Regranex, Autologel)
  – Skin Equivalents (Dermagraft, Apligraf)
  – Adjunctive therapies should be utilized only after conventional treatment has failed

Topical Treatment Exercise

How would you treat:

– A stage IV wound on the Left hip with 50% granulation and 50% slough, a copious amount of tan drainage with no odor and is 2cm deep?

– A wound that has showed no signs of healing for 4 weeks and the wound edges appear to be rolled, what needs to be done to get it to start healing?

– A 100% eschar covered wound on the right hip with no S/S of infection?
Topical Treatment Exercise

How would you treat:

- A wound on the coccyx with a moderate amount of drainage, 60% slough and 40% granulation tissue, wound edges are macerated, it is only .3cm deep, and the resident is incontinent of B & B occasionally?

- Buttock area is severely macerated with multiple nickel size open wounds and the resident is incontinent of bladder and just starting having diarrhea?

Care Plan Tips

- Don’t be specific with topical treatment unless it is an aggressive adjunctive treatment (i.e., Treatment as ordered)
- Document only the type and location of the wound
- Ensure it reflects new comprehensive risk assessment and tissue tolerance

Resources

- Available Resources and Web Sites:
  - www.wocn.org (Wound, Ostomy & Continence Nurse Society)
  - www.ahrq.gov (Agency for Health Care Research and Quality, formerly AHCPR)
  - www.aawm.org (American Academy of Wound Management)
  - www.npuap.org (National Pressure Ulcer Advisory Panel)
  - www.woundsource.com (Great source to find wound care products)

Questions?

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