Wound Management in the Elderly

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Skin Condition

• Key quality indicator
  • To the family
  • To the regulators
  • To other healthcare providers
Cost of Skin Breakdown

• To the facility
• To the healthcare system
• To the patient
Documentation

Absolutely important

- Assessment
- Reassessment
- Follow-up care
- Aspects of care that can’t be changed
- Supportive measures – nutrition, consults, rehab
- Physician communication
Alterations in Skin Integrity among Geriatric Population

- Pressure Ulcers
- Skin Tears
- Lower Extremity Ulcers
  - Venous
  - Arterial
  - Neuropathic
- Incontinence-related Skin Breakdown
Assessing Risk for Skin Breakdown

• Risk Assessment Tools
  • Braden Scale Score
  • Norton Score
• Policy to define when risk assessment is repeated
• Interventions/Protocol to address risk elements
Support Surfaces

• Old Terms - Pressure Reduction and Pressure Relief

• New term – Pressure Redistribution
  • The ability of a support surface to distribute load over the contact areas of the human body.
Support Surfaces

• Components – air, foam, fluid, gel, etc.
• Features – alternating pressure, air fluidized, low air loss, multi-zoned
• Categories – active or reactive, powered or not, overlay or mattress

• Regardless of support surface, patients will always need to be turned.
Types of support surfaces
What about bacteria in wounds?
Bacterial Levels in the Wound

Contamination
bacteria present on surface

Colonization
bacteria attach to tissue and multiply

Infection
bacteria invade healthy tissue and overwhelm immune defenses
Assessing for Infection

- Inflammation vs Infection
- Watch for changing in drainage, fever, local pain, signs of sepsis (hypotension, ^ pulse rate, ^ respirations)
- Localized pain may be only sign of infection with immunocompromised patient
- Look for infection when blood glucose elevated with no explanation
Criteria for identifying infection in chronic wounds

- Increased exudate
- Cellulitis and inflammation
- Surface discoloration (yellow/green)
- Friable granulation tissue (bleeds easily)
- Increased odor
- Abscess formation
- Non-healing wound
- Increased pain/tenderness
- Superficial pocketing of wound base
- Wound deterioration or dehiscence

(Falanga, 1997)
Infection

- Colony counts $> 10^5$ per gram of tissue
- Prolongs the inflammatory phase
- Destroys surrounding tissue
- Retards epithelialization and collagen deposition
- Interrupts the wound healing cascade
Infection

• IFFE - Induration, Fever, Erythema, Edema
• When and how to culture
  • Cleanse wound with saline, press with swab in 1 cm square area to express fresh exudate
• Follow-up on cultures
• Antibiotics - topical vs. systemic
Swab culture techniques (Best Practice)

• Levine technique
  • Clean wound prior to culture
  • Moisten swab with saline
  • Rotate swab over a 1 cm square area with sufficient pressure to express fluid from wound tissue
  • Has been correlated to tissue biopsy results

(Levine, 1976)
What about wound cleansing?
Which wounds need cleansing?

• “Dirty” wounds – wounds caused by bites, trauma with foreign objects or debris
• Infected wounds
• Debate over clean granulating wounds – post surgical wounds, leg ulcers, other chronic wounds
Avoid Antiseptics

- Povidone Iodine – (Betadine) – Use solution only – 1% or 10% is acceptable
- Hydrogen peroxide – damages healing wounds, do NOT use in deep wounds – no safe dilution
- Sodium hypochlorite – Dakin’s solution – safe dilution is .025% (not .25% usually ordered)
- Acetic Acid – no safe dilution
Characteristics of “safe” wound cleansers

- pH balanced
- Non-cytotoxic
- Long shelf life
Examples of safe wound cleansers

- Normal Saline
- Commercially available “wound cleansers” – not the same as “skin cleansers”
  - Smith & Nephew – Dermal Wound Cleanser
  - Bard – Biolex Wound Cleanser
  - ConvaTec – Saf-clens
  - Medline – Skintegrity
  - Etc.....
Necrotic Wounds

- Consider whirlpool or pulse lavage for cleaning
- May use “harsh” agents if healing is not the objective – may help with odor control
  - Dakin’s solution
Debridement Options

- Sharp debridement – scalpel or scissors
- Mechanical debridement – wet-to-dry dressings and whirlpool/pulse lavage
- Chemical debridement – enzymatic agents
- Autolytic debridement – occlusive dressing allows body to debride itself
Principles of Topical Therapy

- Debride non-viable tissue
- Treat infection
- Gently pack open space
- Manage drainage
- Maintain moist wound surface
- Protect from trauma
- Insulate – maintain body temperature
Factors to consider

• Filler needed or just a cover dressing?
• Amount of drainage expected?
• Occlusion needed?
• Adhesive safe or not?
• Cost/frequency of change/availability?
• Goal desired?
Gauze Dressings

- Cheap
- Require frequent dressing changes to keep moist
- Use moist-to-moist instead of wet-to-dry for healing
Hydrocolloid Dressings

- Made of carboxymethyl-cellulose
- Surface is adhesive
- Forms a gel when drainage is absorbed
- Promotes autolytic debridement
- Use with caution in infected wounds
Hydrofibers

• Non-woven dressing used for absorption
• Wicks drainage vertically
• Used as a filler for draining wounds
• Requires a secondary dressing
• Absorbs more than an alginate
Calcium alginate dressings

- Derived from seaweed
- Used as a filler for moderately draining wounds
- Turns to a gel when in contact with wound fluid
- Requires a secondary dressing
Hydrogel Dressings

• Available in gel or sheet form
• Used to hydrate a dry wound
• Sheet can be used as primary dressing
• Gel can be used with gauze
• Promotes autolytic debridement
• Reduces frequency of dressing changes
• Watch for maceration
Foam Dressings

- Available as a filler or a cover dressing
- Available with or without adhesive
- Absorbs drainage but doesn’t let the wound bed dry out
- Cushions and insulates
- May stick if too little drainage
Transparent Dressings

- Very thin polyurethane sheet with adhesive
- Impermeable to water and bacteria
- Allows slow evaporation
- Use in superficial wounds with little exudate
- Can be used over other dressings
Contact layer

• Woven or perforated polymer net that prevents adherence to wound bed
• Use in clean wounds
• Requires a secondary dressing
• Adaptic, Xeroform or Vaseline gauze
• Also silicone sheets, Wound Veil
Collagen dressings

• Available as sheets, particles, pads and rope
• Indicated for refractory wounds
• Collagen incorporated into wound as structure for healing
• Use in moist wounds
• Requires a secondary dressing
Composite dressings

• Combinations of two or more of the previously mentioned dressings

• Consider make-up and desired goals
Antimicrobial Dressings

• Used to treat wounds that have “stalled” when an increased bioburden may be the problem

• Used to treat wounds clinically known to be infected (in conjunction with systemic antibiotic therapy)

• Sometimes used for prevention in high risk patients
Topical antimicrobials

- Silver compounds
  - Silver sulfadiazine
  - Silver impregnated dressings
- Cadexomer iodine (Iodosorb & Iodoflex)
- PHMB impregnated dressings (Kerlix AMD)
- Sodium hypochlorite solution (Anasept)
- Manuka honey (Medihoney)
- Mupirocin (Bactroban)
- Metronidazole gel (Metrogel)
Silver Dressings

• Believed by many to provide an environment conducive to the preparation of the wound bed for healing by controlling the bio environment (bacteria)

• The evidence base is still in its infancy (really), but early reports point toward accelerated healing when other factors are corrected (i.e., malnutrition, necrotic tissue, etc.)
Silver Dressings

• Advantages:
  Physicians seem to like using silver in wound care
  Product may be left in the wound for an extended period of time without losing efficacy (5-7 days)

• Disadvantages:
  Cost (Product can range from $10-20 per unit)
  Discoloration from some products may alarm patients/caregivers
  Products are often used incorrectly (changed too often) and have specific nuances
Cadexomer Ointment or Pads with Iodine (Iodosorb/Iodoflex)

• Iodine molecules encased in a protective matrix which breaks down as wound exudate is absorbed, allowing for a gradual release of iodine

• Absorbs exudate, contributes to the elimination of slough

• Very little in the literature to support this delivery system

• Advantages:
  ~ prescribers are familiar with iodine
  ~ Can be left in wounds for several days

• Disadvantages:
  ~ improperly used
  ~ awareness of iodine toxicity and other contraindications are sometimes ignored
PHMB impregnated gauze

- Polyhexamethylene Biguanide (a compound similar to chlorhexidine)
- An antiseptic that has a broad range effectiveness against gram positive and gram negative microorganisms
- Prevents infection, no claims for treatment of infection
Sodium Hypochlorite Solution (Anasept)

- 0.057% sodium hypochlorite in an isotonic saline solution
- Clear amorphous isotonic hydrogel with 0.057% sodium hypochlorite
- maintain microbiocidal activity for at least 24 hours
Manuka Honey (Medihoney)

- Contains active *Leptospermum* honey from New Zealand
- Effective on hard-to-heal wounds and burns
- Helps to debride wounds and keep wound beds clean of necrotic tissue
- Indicated for diabetic foot ulcers, venous leg ulcers, arterial leg ulcers, pressure ulcers (I-IV), 1st and 2nd degree burns, donor sites, traumatic and surgical wounds
Negative Pressure Wound Therapy

• Once thought to be a “second line therapy”, is now considered by some to be a “first line” intervention.

• Advantages: seen to rapidly decrease wound dimensions in some patients and reduce costs in all care settings by reducing the overall number of dressings.

• Anecdotal findings point to a reduction in wound infections.

• Disadvantages: requires intensive staff education.
Reassessment

• Few dressings can take a wound from beginning to healed.

• Reassess wound and adjust dressing regimen as needed.

• Policy on wound reassessment.

• Standardize wound measurement techniques or have same person measure weekly.
Guidelines for Care

- AHRQ (formerly AHCPR) guidelines are outdated and archived
- WOCN Society has guidelines for pressure ulcers and lower extremity ulcers
- AMDA published in 2008 and reaffirmed in 2013
- 2014 NPUAP/EPUAP/PPPIA guideline
References


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