Neonatal Wound Management

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Objectives

- Discuss common wounds which arise in the NICU patient
- Review key components of wound management
- Discuss importance of early recognition and treatment
- Review function of debridement and granulation
- Review safe and effective treatment options in neonates.
Common Neonatal Wounds

- Contact Irritation
- Surgical Wounds
- Pressure Ulcers
- IV Infiltrates
- Trauma/Shear Injuries/Misc
- Infections
Contact Irritation

- Commonly arise due to caustic secretions injuring superficial skin.
- Frequently associated ostomy sites resulting in periwound excoriation and diarrhea leading to severe buttock excoriation.
- Both conditions painful and if untreated may result in secondary infection and in ostomy situations may compromise surgical site.
Contact Irritation
Surgical Wounds

Surgical wounds develop due to multiple factors:

- Postoperative hydration management
- Nature of the underlying pathology
- Delayed recognition of the wound
- Prematurity of the patient
- Nutritional status of the baby
- Association with wound infection
Surgical Wounds
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.

- Among neonates and children, 50% of pressure ulcers are equipment and device related (i.e. nasal prongs, CPAP masks, tubing and lines).

- In the pediatric population, the occiput is the largest bony prominence and the most common site of pressure ulcer development.
Pressure Ulcers
IV Infiltrates

- An unfortunate but common condition in the NICU environment.

- Multifactorial etiologies: Fragility of neonatal vasculature, difficulty in line placement and osmotic concentration of infusing fluids.

- Key factor is early recognition and immediate cessation of infusion.
IV Infiltrates
Trauma/Shear Injuries/Misc

* Typically arise from accidental injury to the skin from external devices, diapers, and clothing.

* Extremely premature infants (23-24 weeks) are prone for abrasions and skin tears.

* Caution required when removing adhesive probes, Tegaderm (film) dressings, Duoderm (hydrocolloid) dressings.
Trauma/Shear Injuries/Misc
Infections

- Neonates and premature infants are at increased risk of bacterial and fungal infections.
- Decreased immunity, foreign devices, prolonged use of antibiotics and acquisition of infection from the environment and caregivers place these infants at risk for serious infections.
- An open wound itself may serve as a portal of entry for an infection to arise as well.
Infections
Principles of Wound Management

- Early recognition and initiation of treatment
- Wound must be covered and not allowed to dry. Ideal environment is moist wound
- Initial and maintenance debridement by physician will remove nonviable tissue inhibiting healing
- Proper recognition and treatment of infection
- Appropriate dressings to facilitate granulation
Early recognition and initiation of treatment

- Physicians and RNs need to identify babies at risk for wounds - paralyzed, sedated, edematous, IV sites

- Call for assistance and initiate coverage of wound early - wounds should be covered using a safe and effective dressing such as silicone bordered foam.

- In extreme premature infants, application of Xeroform or petroleum-based dressings are ideal.
Debridement

- Removal of nonviable tissue, drainage and slough is critical for healing and granulation to occur.

- Means of debridement include:
  - Sharp: scalpel, scissors, forceps
  - Enzymatic: Santyl
  - Honey
Debridement

- Santyl® ointment is an enzymatic debriding ointment which breaks down collagen in necrotic non viable tissue.
  - “Eats bad, leaves good alone”

- Medical Grade Honey is an extremely effective debriding agent and facilitates granulation as well.
  - Antibacterial against MRSA, pseudomonas and other gram negatives.
  - This is not “Little Bear” Honey from HEB.
Granulation/Wound Closure

- Once effective debridement is obtained, healing and wound closure facilitated by various specialty dressings
  - Collagen/Silver: Purocal Plus, Prisma
  - Honey
  - Synthetic skin substitute: Acell Matristem, Oasis
  - Negative Pressure Wound Vac therapy
Advanced Wound Dressings
Overview of Dressing Principles

- If it’s too wet – absorb it
- If it’s dry – hydrate it
- If there’s a hole – fill it
- If there’s necrotic tissue – remove it
- If there’s healthy tissue – protect it
Primary Dressing Categories

Films
Hydrocolloids
Hydrogels
Foams
Alginates
Why Not Wet to Dry Dressings?

• The only role for Wet to Dry are in cases where debridement of severe slough is necessary.

• In these cases removal of wet to dry dressing is typically not painful because viable tissue has not yet been reached.

• This would be an inexpensive method of mechanical debridement.
Why not Wet-to-Dry Dressings?

- No longer standard of care for chronic wounds
- In neonatal patients really no application or use
- WtD damages healing granulation tissue through adhesion, drying
- WtD cools wound bed => leads to many factors which slows healing process
- WtD debridement is painful and only effective on loose slough
Why not Wet-to-Dry Dressings?

- Compared to other advanced wound dressings, there is nothing within gauze that stimulates healing or promotes protection.
- Increased risk for infection
  - Not a barrier to environmental bacteria
  - Bacteria shown to penetrate multiple layers of gauze rapidly.
- Saline applied to gauze promotes desiccation/drying.
Silicone Bordered Foam

- Excellent choice for secondary dressing to cover wounds in neonates.
- Soft and highly conformable foam dressing that absorbs exudate and maintains a moist wound environment.
- Atraumatic to the wound and surrounding skin upon removal.
- May be lifted and adjusted without losing its adherent properties.
- Minimizes the risk of maceration.
- May remain in place for several days depending on the condition of the wound.
Silicone Bordered Foam

Mepilex (Molnlycke)  Optifoam Adhesive (Medline)

Allevyn Gentle Border (S & N)
Success
Success
Success
Thank You!!

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