Chronic Wound Management: Family Practice Style

Back to the Basics

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Objectives

• State the 3 Basic Principles in Chronic Wound Management.

• Discuss the benefits of Moist Wound Healing.

• List proper chronic wound cleansing products and 4 dressings that promote healing.

• Raise awareness when to refer to Mercy Vascular & Wound Center
Acute VS Chronic Wound Healing

- **Acute Wounds**
  - Move through the healing cascade from insult to closure at a predictable rate:
    - Homeostasis,
    - Inflammatory
    - Proliferative &
    - Maturational Phases

- **Chronic Wounds**
  - Failure to progress through the healing stages
  - **Goal:** move the chronic wound to an acute wound state
  - **How?** Wound debridement & dressings assist in the ‘conversion’ of chronic wounds to an **Acute** state via **Moist Wound Healing**!!
Basic Chronic Wound Care in a Nutshell!

- Three Principles in ALL chronic wound care
  - 1. Identify the CAUSE of the wound
  - 2. Support the Host
  - 3. Provide an Optimal Micro-environment
Principles of Chronic Wound Management

1. Identify & Control or Eliminate the Cause
   - Mechanical forces, Moisture, Chemical, Vascular, Neuropathic, Infectious, Atypical

2. Support the Host
   - Enhance nutritional and fluid status
   - Manage edema
   - Control co-morbidities
   - Address pain

3. Optimize the Micro-wound Environment (TIME)
   - Tissue - Remove macro & micro devitalized tissue
     - Control odor
   - Infection - Prevent or treat
     - Cleanse Wound
   - Moisture balance
   - Edge of wound
     - Fill dead space
     - Protect peri-wound skin
     - Prevent epiboli, callous
   - *Assess Biological Co-factors
     - Nitric Oxide
     - MMP’s

Identify the Cause

• Main causes of chronic wounds:
  ▫ Mechanical and chemical factors
    • Pressure- over bony prominences in patients with altered mobility
    • Shear- coccyx, sacral, usually full thickness with undermining
    • Friction
    • Moisture- drainage, incontinence, or perspiration
Causes of Chronic Wounds

• Neuropathic
  ▫ Loss of sensation
    • Diabetes
    • Trauma
Causes of Chronic Wounds

• Arterial Disease
  ▫ Poor blood flow
Causes of Chronic Wounds

- Venous Disease
Causes of Chronic Wounds

• Miscellaneous
  ▫ Radiation
  ▫ Cancer
  ▫ Vasculitis
  ▫ Infections
  ▫ Burns
Identify the Cause

- Once identified—Eliminate or Reduce It!
  - Pressure- pressure reducing/relieving devices
  - Shear/Friction- Keep HOB below 30 degrees
  - Moisture- incontinence protocol, drainage collector
  - Venous disease- compression
  - PVD- surgery, conservative
  - Neuropathic- off load
  - Infectious- tx with meds
Identify the Cause and Eliminate or Reduce It!

- **Miscellaneous**
  - Radiation burn: emulsions such as Biafine
  - Cancer: surgical, conservative - manage odor, drainage
  - Vasculitis: steroids, pain management, local wound care
Support the Host

• Control & stabilize any health issues
  ▫ diabetes, anemia
  ▫ cardio-pulmonary problems
  ▫ electrolyte imbalances
  ▫ Edema
  ▫ Smoking cessation

• Optimize Nutrition Status
  ▫ Dietary consultation
  ▫ supplementation
Optimize Nutritional Status

- General recommendations:
  - .8 gm/kg body weight. Pt’s with wounds may need to increase to 1.0-2.0 gm/kg
    - I.e., heavy exudating wounds may need 75-100 gms of protein a day.
    - local tissue edema from decreased protein levels
Provide an Optimal Micro-Environment

• Remove Necrotic tissue
  ▫ Autolytic
  ▫ Sharp
  ▫ Surgical
  ▫ Chemical enzymes
Provide an Optimal Micro-Environment

- Eliminate infection or control bio-burden
- Provide moist wound therapy
- Absorb excess drainage, control odor
- Fill dead space
- Protect the peri-wound
- Control swelling
Advantages of Moist Wound Healing

- 1. Prevents wound desiccation
   - NO Scabs
- 2. Enhances cell migration
- 3. Increases angiogenesis
- 4. Enhances autolysis

- 5. Reduces dressing frequency
  - Saves time, reduces costs
- 6. Provides a protective barrier & thermoregulation

- *7. May alter biological factors

General Chronic Wound Care Pearls

• 3 Little Bears Story
  ▫ Not too Wet, Not too Dry

• Protect the surrounding skin

• If the legs are swollen get rid of it with compression if adequate blood flow

• Wound cleansing
  ▫ Normal Saline
  ▫ Soap/H2O
  ▫ Commercial Cleansers
  ▫ Limit antiseptics!
    • Dakins Solution
    • Acidic Acid

• Never H2O2, betadine

• Do Not Use OTC Triple Antibiotic Ointments
Dressing Selection?

• **Wound Assessment**
  ▫ Cause of wound
  ▫ Location, depth, size
  ▫ Condition of wound base
  ▫ Presence of undermining or tunnels/tracts
  ▫ Amount of drainage
  ▫ Condition of wound edge & peri-wound
  ▫ Pain?
  ▫ Odor?

• **Other Considerations:**
  ▫ Previous Dressing Use HX
  ▫ Patient and caregiver needs
  ▫ Ease of Use
  ▫ Reimbursement issues
  ▫ Product availability
  ▫ Buying groups
  ▫ Health care setting

- 1. Bacterial Load?
- 2. What is the NO bioactivity?
- 3. Excessive MMP production?
Keeping Bacteria Out of the Wound

• Research has shown that bacteria are able to penetrate up to 64 layers of gauze

• A single transparent film, hydrocolloid or polymer foam is a barrier to bacterial entry
  
Four Wound Product ‘Must Haves’ for Clinic Base Practice

1. Hydocolloids
   - Replicare, DuoDERM

Partial thickness Wounds

If draining moderately, add fiber product
   - Calcium Alginate

Expect yellowish drainage & mild odor

Change 3-5 days; No more than 3 times per week
Four Wound Products ‘Must Haves’

- **2. Foams**
  - Mepilex, Alevynn

- Partial to shallow full thickness wounds

- Add fiber product if draining
  - Calcium Alginate
  - Hydrofiber

- Great for fragile skin!
  - Skin tears, shin trauma
  - Change once a week; no more than 3 X per week.
Four Wound Product ‘Must Haves’

• **3. HydroGels**
  - Solosite, SilverSorb, SAF-GEL

• Keeps wounds moist!

• Use for all Types of dry or minimal exudating Wounds

• Can use with gauze & gauze packing

• Great for 1\textsuperscript{st}-2\textsuperscript{nd} degree burns
  - SilverSorb Gel
Four Wound Product ‘Must Haves’

4. Fiber Type Products
   AlgiSite, Kaltostat, Aquacell
   -Absorb drainage!
   -22X’s their weight
   -Use with other products such as foam, hydrocolloids
   -Use as packing to fill defects, undermining

*Silver Fibers*
   -Aqua Cell AG!
   -Antimicrobial, kills MRSA, VRE
   -Reduces bioburden
Common Clinic Skin/Wound Problems

- 1. Incontinence Associated Dermatitis
- 2. Burns
- 3. Skin Tears
- 4. Diabetic Foot Callous, Blisters, Ulcers
- 5. Swollen legs with stasis dermatitis
What is Incontinence Associate Dermatitis (IAD)?

- Inflammatory response to the injury of the water-protein-lipid matrix of the skin
  - Caused from prolonged exposure to moisture, urinary and fecal incontinence

- Physical signs on the perineum & buttocks
  - Erythema, swelling, oozing,
  - Vesiculation, crusting and scaling (3)
Risk Factors Associated with IAD

• 1. Exposure to moisture
• 2. FI & UI
• 3. Use of a containment device
• 4. Alkaline pH
• 5. Overgrowth of resident flora
• 6. Friction
• 7. Morbid Obesity

Multifactorial Problem: yeast, moisture, friction, pressure, odor

Treatment: shower daily, soft cotton cloths, oral antifungal, barrier ointment 2Xd.

1 week later.
Candidasis, Intertrigo, Irritant dermatitis

- **Challenges:**
  - Limited resources
  - Obesity
  - No self care; dependent on disabled wife
  - COPD
  - Venous insufficiency
  - DM

- **New Skin Fold Product**
  - InterDry by Coloplast

2 weeks later.
2nd Degree Hand Burn

Initial blisters

Post Debridement

Silver hydrofiber- AquaCell AG

Dressing- 2 weeks later
Pt. seen 4th day post steam burn, using silvadene, painful: debrided dead tissue, applied silver hydrofiber & ABD’s.

Silver dressing leave in placed for 2 weeks, then remove.

1 week later; No pain 2nd day.
Second Degree Burn TX

2 weeks later, re-epithelialized; no drainage, kept skin protected; returned to work.
Skin Tears

- Do NOT use transparent dressings! i.e. Opsite

- If recent and viable skin flap, clean well with NS and approximate the edges, hold in place with contact layer. Then cover with foam, kling.

- Use foam, kling, leave alone for 3-7 days

- Tissue loss- Foam (add fiber if too wet), kling, change 3-5 days
Diabetic Foot Ulcers/Blisters

- Prevention is the first priority!

- Callous is pre-ulceration

- Proper Foot wear with wide toe box and custom inserts
Examination of the Foot=

Both feet!

- Risk factor assessment
- Visual inspection
  - Rubor, pallor, callus, xerosis, edema, foot deformity
- Vascular assessment
  - Pulses, dorsal vein distention, temperature
  - REFER for evaluation ASAP if signs of cellulitis or bone exposure. May need hospitalization for IV ABX.
    - Picture=hospitalization
Examine Both Feet

- **Sensory assessment**
  - Pressure, touch, vibratory
  - 5.07 Semmes-Weinstein monofilament

- **Motor Assessment**
  - Joint rigidity, muscle wasting, gait disturbance
Reversible Causes

• Off loading first priority!!!!!
  ▫ Effective only if it is used by the patient
    • Appearance
    • Comfort/ease of use
    • Perceived benefit

• One night trip to the bathroom can undo a whole week of wound healing!!
Custom Insole
Types of Preventive offloading products

- Ambulatory aides
  - Canes offer stability only
- Crutches, walker, w/c, bed rest, knee scooters
- Simple insoles - not for ulcer management
- Custom molded insoles
- Orthotic shoe with depth
Charcot Foot= Preventable!

Charcot- progressive bony destruction: Acute- hot, swollen, red foot (looks like cellulitis but NOT) bounding pulses, large veins, no pain, fever etc.

Immediate emergency: needs complete offloading to prevent complete collapse of foot!!!!

Total Contact Casting ASAP
Diabetic Foot Care- Patient Education

- Do Not Soak Feet
- No BR surgery
- Specialist for toenails if can not see or if fungal
- Hydrate skin daily
- Wear white cotton/blend socks
- See PCP if any sores ASAP
- Proper foot Wear- Always!!
- Exam feet with mirror every day!
Challenges in Chronic Wound Management - Refer!!

- Why Won’t these wounds heal despite optimal wound care?
  - Unclear etiology
  - Ineffective off loading, pt. noncompliance
  - Poor vascular support
  - Edema uncontrolled
  - Co-morbidities uncontrolled, tobacco addiction
  - Lack of support systems
  - Poor nutrition
- Critical colonization, infections, osteomyelitis
- MMP’s excess
- Lack of debridement
- Caustic cleansing agents
- Usually multiple factors
Three Principles in ALL Chronic Wound Care

• 1. Identify the CAUSE of the wound
• 2. Support the Host
• 3. Provide an Optimal Micro-environment
What is a Vascular Wound Center? (VWC)

• Multidisciplinary team approach to provide holistic, comprehensive, & evidence base chronic wound care.
  ▫ Clinical Pathways!
PCP’s are important in VWC

• It will be necessary for the primary care provider to work with the patient for medical management of processes that may affect wound healing, i.e., glucose control, CV & P maintenance etc.
What other therapies may become involved?

- Lymphedema management
- Diabetic education
- Soft goods fitting
- Podiatry or Foot/toe nail care
- Orthotic/prosthetic evaluation
- Dietician
- Dermatology, Plastics, Vascular, Orthopedic General surgeons Consults etc.
- Radiology, Lab
Who should be seen at the Vascular Wound Center?

- Clients who have non-healing wounds of any origin (30 days)
- Such as:
  - Pressure ulcers
  - Diabetic neuropathic ulcers
  - Venous stasis ulcer
  - Arterial ulcers
  - Vasculitic wounds
  - Surgical wounds
  - Trauma Wounds

- Wounds that have not healed in 30 days is a Chronic Wound
Surgical Wounds

Compliments of Deb Netsch, 2010
Trauma Wounds

Compliments of Deb Netsch, 2010
Wound Care Modalities

- Compression
  - Elastic & In-elastic
  - Pneumonic pumps
- NPWT
- Moist Wound Healing Dressings
- Enzymes
- Antimicrobials
  - Hydrofera Blue
  - Honey
  - Silver fibers
- TCC/off loading

- Advance Wound Care
  - ExtraCellular Matrix
    - Oasis
  - Collagen Products to reduce MMP’s
    - Endoform
  - Skin Substitutes
    - Apligraf
    - Dermagrapth
    - TheraSkin
    - Epifix
    - Primatrix
Hyperbaric Medicine

- What is It?
- How does it Work?
- What isn’t It?

- Original indications
  - Diving accidents
  - Carbon Monoxide Poisoning
  - Air or Gas Embolism

- HBO Indications !!!
  - DM wounds of the lower Extremity
    - Wagner grade III
  - Chronic osteomyelitis
  - Compromised Skin Grafts & Flaps
  - Delayed Radiation Injury
  - Necrotizing Soft tissue Infections
  - Crush Injury, Compartment Syndrome
  - Acute Traumatic Ischemia's
  - Other Wounds........
How to Make an VWC Referral

• Call Vascular Wound Services (641-428-5932) to make an appointment. Have referring provider’s name, clients Diagnosis & if DM available , list of meds or

• Fax referral to Vascular Wound Center
  • 641-428-6160

• Initial visit, client must register in Out Patient Admitting in order to get into the system, Come 15 minutes before schedule appointment.

• Client may be ask to keep a 3 day dietary log, bring list of medications, & blood glucose log if indicated.


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