Pressure Ulcers

Background

1. Definition
    - Lesion caused by unrelieved pressure
2. General information
    - Incidence as high as 23% in nursing home pts
    - Costs related to treatment exceed $1 billion annually
    - Prevention can reduce the incidence

Pathophysiology

1. Pathology of disease
    - Tissue damage due to unrelieved pressure
    - Hypoperfusion followed by hypoxia, acidosis and if prolonged necrosis
    - Most common over bony prominences
2. Incidence, prevalence
    - Up to 23% in nursing home pts
    - Up to 9% in hospitalized pts
3. Risk factors
    - Extrinsic
        - Direct pressure
        - Shearing force
        - Friction
        - Moisture
    - Intrinsic
        - Age
        - Impaired mobility
        - Malnutrition
        - Sensory impairment
        - Co-morbid medical conditions (diabetes, vascular dz, obesity)

Diagnostics

1. History: H&P with emphasis on:
    - Risk factor assessment
        - Braden Score
        - Norton Score
    - Nutritional assessment
    - Pain assessment
2. Physical exam
    - Stage classification
        - Non-blanchable erythema of intact skin
        - Partial thickness skin loss involving the subcutaneous tissue, but not fascia
        - Full thickness skin loss
        - Full thickness skin loss with damage to muscle, bone or supporting structures

- Record size, type of exudates and type of tissue present in the wound
- Assess for undermining and/or tunneling
- Wound cannot be accurately assessed if escar is present

3. Diagnostic testing
    - Laboratory evaluation
        - Avoid superficial swab cultures
        - If culture is required-needle aspiration or tissue biopsy
    - Diagnostic imaging
        - Xray or MRI if osteomyelitis is suspected
    - Other studies
        - Vascular studies (ABI) if PVD is suspected

Differential Diagnosis

1. Venous stasis ulcer
    - Medial malleolus most common site
    - Irregular flat border
    - Assoc. findings:
        - Edema, varicose veins, and reddish-brown skin discoloration
2. Diabetic ulcer
    - Most often in weight bearing areas
        - Heel
        - Plantar metatarsal head
        - Tips of the 1st/2nd toes
        - Tips of hammer toes
    - Associated peripheral sensory neuropathy
3. Peripheral vascular disease ulcer
    - Skin hairless over the lower extremities
    - Color change of the lower extremity with position
        - Rubor when dependent
        - Pallor when elevated

Therapeutics

1. Initial treatment
    - Debridement- if escar (exception is that dry, black escar on heels should not be debrided) and/or necrotic tissue is present
    - No single method of debridement has been superior
        - Sharp
            - Recommended for urgent cases (i.e. cellulitis and sepsis)
            - Fasted form of debridement
            - Anticipate and treat pain
        - Enzymatic-Fibrinolysin, Proteolytics and Collagenase
            - Slower form of debridement
            - Recommended for patients who cannot tolerate sharp debridement
        - Mechanical
            - Wet-to-dry dressings (may be painful and need to be d/c when wound is dry)
            - Hydrotherapy

            - Wound Irrigation
            - Dextranomers- small carbohydrate-based beads that help absorb exudate and liquid debris
        - Autolytic
            - Occlusive dressings
            - Contraindicated in infected wounds
    - Wound cleansing
        - Normal saline
        - Avoid skin cleansers or antiseptics: cytotoxic
    - Dressings
        - Goal is to keep the wound bed moist and the surrounding tissue dry
        - Selection depends on stage, amount of exudates, size, and site
        - Packing is often needed to eliminate dead spaces
        - If excessive exudate use a dressing with absorptive properties
        - Wet-to-moist saline dressings are less expensive, but require more caregiver time
    - Risk factor modification
        - Frequent re-positioning
        - Use support device to lower surface pressure
        - Donut-type devices should be avoided
    - Nutritional support
        - Protein intake goal: 1-1.5 g/kg daily
        - Caloric intake goal: 30-35 kcal/kg daily
        - Evidence that supplemental Vit C or Zinc enhances wound healing is limited
2. Further management
    - Monitor for infection
        - Signs: delayed healing, increasing wound size, exudates, odor, pain
        - Trial of superficial antibiotic for two weeks
        - Systemic antibiotics: cellulits, osteomyelitis, bacteremia, sepsis

Follow-Up

1. Return to office
    - Patients should be evaluated weekly
    - Recommendations for earlier follow-up
        - Signs of infection
2. Refer to specialist
    - Wound care specialist if the ulcer is not improving
    - Surgical consultation for extensive debridement or consideration of operative repair (flaps/grafts)
3. Admit to hospital
    - Cellulits not responding to po antibiotics
    - Osteomyelitis
    - Bacteremia
    - Sepsis

Prevention

1. Key to management is prevention
2. Use of support surfaces (mattresses, beds, and cushions)
3. Patient repositioning
4. Optimizing nutritional status
5. Moisturizing sacral skin
6. Focus of risk factor reduction

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