

Principles of wound care

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2013

GOALS OF LOCAL WOUND TREATMENT

- Wound bed preparations
- Convert to surgically clean wound
- Debride necrotic tissue
- Treat / prevent local infection
- Protect surrounding tissue
- Protect wound against trauma eg with splints
- Absorb excess exudate
- Drain excess fluid eg blood or pus

ASSESSMENT OF THE WOUND

- Assess general condition of patient
- Assess local wound
 - length, breadth and depth
 - cleanliness or otherwise
 - vitality of tissues
 - infection and extent
 - surrounding tissues

MANAGEMENT PLAN

Optimise Systemic Condition

- nutrition
- medication
- oxygenation
- diabetic control
- immune suppression status
- infection

Rational local treatment

Treatment of a wound

- Best treatment is prevention
 - Surgical incision properly placed and executed
 - Use appropriate prophylaxis and correct technique
 - Care of ischaemic and diabetic feet
 - Care of pressure areas including eg correct intra-op positioning and protection

DECONTAMINATION OF WOUNDS

- Copious irrigation and scrubbing of contaminated wound eg after MVA
- Diversion of excreta eg colostomy
- Control fistula effluent eg use wound management bag or vacuum -assisted closure (VAC) system

WOUND DEBRIDEMENT

- Mechanical or surgical
- Chemical eg aserbine
- Autolytic (moist dressing)

ANTISEPTIC WOUND TREATMENT

- Do not put into a wound what you would not put into your own eye
- Inorganic halide and alcohols eg chloride and iodine base of antiseptics banned
- Organic antiseptic at correct strength eg Povidone Iodine

IDEAL WOUND DRESSING

- Moisture retentive
- Perspirative
- Absorptive
- Protective from trauma
- Thermal insulation
- Microbial barrier
- Non-traumatic removal

MOIST WOUND CARE I

Moist wound heal faster than dry wounds

- Winter demonstrated benefit of moist wound healing in superficial incised wound in 1962!
- Dyson et al demonstrated similar benefit in full thickness accidental lacerations in 1988

MOIST WOUND CARE II

Moist wound heal faster than dry wounds

- Dryness desiccates inflammatory cells and new epithelium
- Moist healing accelerates inflammatory process
- Epithelial cells migrate easily across moist wound surface
- Moist environment enables proteolyses of dead tissue

Caveat: Guard against maceration of normal tissues

Dry dressing removes new epithelium on changing

MONITORING OF WOUND CARE

Could care hinder healing - YES

- frequent changes of dressing
- inappropriate dressing material
- Inappropriate antiseptic
- dry dressing
- too frequent wound inspection

- Take off only if:
 - Dressing soiled (saturated with moist)
 - Excessive pain
 - Surrounding tissue shows excessive inflammatory response
 - If bleeding present

PROPHYLAXIS AGAINST INFECTION

General Antisepsis

Antimicrobial Application

- local (mostly used)
- systemic

Choice of antimicrobial Therapy

Choice of wound dressings

- Skin grafts (SSG, full thickness, flaps)
- Hydro colloids
- Hydrogels
- Algenates
- Impregnated dressings eg silver/antibiotic
- Skin substitutes
- Amniotic membrane
- Xenograft

WOUND DRESSINGS

- Films eg Opsite, Tegaderm
- Hydrocolloids eg Granuflex, Comfeel
- Hydrogels eg Intrasite gel, Elastogel
- Foams eg Allevyn
- Impregnates eg Adaptic
- Absorptive powders or pastes eg Hydrogram

DRY WOUND DRESSING

- Sticks to wound
- New epithelialisation destroyed on removal
- Causes pain on changing

VACUUM ASSISTED WOUND CLOSURE

- Low pressure continuous suction
- Indications
 - High exudate
 - Discharging fistula
 - Large dead space
- New device no adequate scientific tests

Macrophage preparations for decubitus ulcer treatment

- Geriatric decubital ulcer
- Monocytes derived macrophage application
- 27% vs 6% healing of conventional methods
- Healing faster after macrophage application!

WOUND DRESSING (I) - FILMS

- Composition
 - semipermeable
 - polyurethane
 - copolyester
- Examples
 - Op-site
 - Tegaderm
- Functions
 - Mimics Skin
 - H₂O and bacteria “breathes”
- Indications
 - Acute Partial or Thickness “dry” wounds

WOUND DRESSING (II) HYDROCOLLOIDS

- | | |
|-------------|---|
| Composition | - Hydrophilic colloid particles |
| Examples | - Granuflex
- Comfeel
- Intrasite |
| Function | - Absorbant, Debrides by
Autolysis, Promotes healing
Protects |
| Indications | - Acute or Chronic any thickness |

WOUND DRESSING (III) - HYDROGELS

- Composition - 80 % - 99 %
H₂O linked polymers eg
acrilamides, polyethyleneoxide
- Examples - Intrasite gel
Elastogel
- Functions - Creates moist environment, low
absorbancy
- Indications - Acute or chronic non-exudative

WOUND DRESSINGS (IV) - FOAMS

- Composition - Hydrophobic or Hydrophilic polyurethane gel or film
- Examples - Allevyn
- Function - High Absorbency, 'Debrides,' "breathes"
- Indications - Acute or chronic exudative or slough

WOUND DRESSING (V) - IMPREGNATES

- Composition - Gauze mesh impregnate with moisturizer or antimicrobial
- Examples - Adaptic
- Biobrane
- Functions - Promotes healing or anti-microbial
- Indications - Acute or chronic partial thickness minimal exudate

WOUND DRESSINGS (VI) – ABSORPTIVE POWDERS AND PASTES

- Composition - Starch copolymers colloidal hydrophilic particles
- Examples - Hydrogran
- Functions - High absorbancy
Debrides
- Indications - Chronic full thickness with copious exudate, slough

WOUND DRESSINGS (VII) – BIOLOGIC DRESSINGS

- Composition - Natural skin / membranes
- Examples - Amniotic membrane
Xenogeneic skin (pig)
- Function - Biologic cover
- Indications - Large burns
- Problems - Infection (not rejection)

WOUND DRESSINGS (VIII) – WOUND MANAGEMENT BAG

- Composition - Oversize “stoma” bag
- Examples - Hollister
- Functions - Collection of fistula or high volume exudate
- Indications - Complex wounds with fistula

Summary

- Assess wound quality
 - Classify wound
 - Assess local tissue health, perfusion and sepsis
 - Correct abnormalities and optimise health
- Assess patient health and quality
 - Nutrition status
 - General health status esp. O₂ carrying capacity
 - Immune status esp. HIV/DM
 - Correct abnormalities and optimize health