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 dessicates 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
## Composition
- 80 % - 99 %
- $H_2O$ 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

<table>
<thead>
<tr>
<th>Composition</th>
<th>- Hydrophic or Hydrophobic polyurethane gel or film</th>
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<tr>
<td>Examples</td>
<td>- Allevyn</td>
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<tr>
<td>Function</td>
<td>- High Absorbency, ‘Debrides,’ “breathes”</td>
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<tr>
<td>Indications</td>
<td>- Acute or chronic exudative or slough</td>
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WOUND DRESSING (V) - IMPREGNATES

Composition - Gauze mesh impregnated with moisturizer or antimicrobial

Examples - Adaptic
- Biobrane

Functions - Promotes healing or antimicrobial

Indications - Acute or chronic partial thickness minimal exudate
### 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)
<table>
<thead>
<tr>
<th>Composition</th>
<th>- Oversize “stoma” bag</th>
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<td>Examples</td>
<td>- Hollister</td>
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<td>Functions</td>
<td>- Collection of fistula or high volume exudate</td>
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<tr>
<td>Indications</td>
<td>- Complex wounds with fistula</td>
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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