WOUND CARE MASTERCLASS
– Introduction to wound management for pharmacists

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OBJECTIVES

- WOUND HEALING PROCESS
- WOUND CLASSIFICATION
- WOUND DRESSING PRODUCTS
The ways in which wounds heal

Three basic classifications exist:

- Healing by primary intention
- Delayed primary healing
- Healing by secondary intention
Wound healing process

- Inflammatory phase
- Proliferative phase
- Remodelling or maturation phase
Inflammatory phase (0-3/7)

- Bleeding occurs
- Damaged ends of blood vessels constrict
- Clotting process initiated
- Fibrin mesh forms over wound/trapping blood cells
- Prostaglandins & histamines released
- Dilation of blood vessels
Proliferative phase (3-24/7)

- Regeneration & construction of new tissue
- Monocytes become macrophages
- Angiogenesis is stimulated
- Collagen synthesis
- Fibroblasts multiply & form scaffold of collagen fibres and support capillary loops (granulation tissue)
- New blood capillaries grow into wound margins
Maturation phase (21 days - 2 years)

- Myofibroblasts help with contraction of wound edges
- Epithelial cells migrate over new granulation tissue
- Eventually covering entire wound
- Remodelling of scar - stimulated by macrophages resulting in reorganisation of collagen fibres
Moist wound healing

- Basic concept is that the presence of exudate will provide an environment that stimulates healing
- Exudate contains:
  - Lysosomal enzymes, WBC’s, Lymphokines, growth factors........
- There are clinical studies which have shown that wounds maintained in a moist environment have lower infection rates and heal more quickly
Factors affecting wound healing

- Co-morbidities
- Nutritional status
- Mobility status (pressure ulcer risk)
- Continence status
- Advancing age
- Cognitive impairment
- Patients concordance
- Carer input/ involvement
- Multi-disciplinary involvement
- Medication
Factors affecting wound healing...

- Immune status
- Blood glucose levels (impaired white cell function)
- Hydration (slows metabolism)
- Blood albumin levels (‘building blocks’ for repair, colloid osmotic pressure - oedema)
- Oxygen and vascular supply
- Pain (causes vasoconstriction)
- Corticosteroids (depress immune function)
Wound Assessment

- Type of wound
- Location and position of wound
- Grading/Classification
- Wound dimensions
- Clinical appearance of wound bed
- Surrounding Skin
- Level of exudate

- Odour
- Infection - swab
- Pain
- Allergies or skin sensitivities
- Previous Treatment
- Wound Measured/Mapped
- Wound photograph
- Reassessment / Evaluation
Why dress a wound?

- To create warm, non-toxic, moist environment conducive to healing
- To promote haemostasis
- To prevent infection
- To reduce pain
- To control & contain wound exudate
- To promote autolytic debridement
- To protect from further injury
- To minimise & contain odour
- To protect surrounding skin
- To protect quality of life
Choosing an ideal dressing

Consider:

- Size of wound
- Site of wound
- Stage of wound healing
- Amount of exudate
- Condition of surrounding skin
- Absorption qualities
- Requires infrequent changing
- Provides patient comfort

- Method of adhesion
- Skill required to apply & remove
- Cost
- Is non-toxic, non allergenic, non sensitising
- Is it on the Trust’s preferred dressing list
Hydrogels

- Insoluble polymers which donate liquid & absorb limited amount of exudate
- Hydrogels contain large amounts of water (80%+)
- Provide moist environment to devitalised tissue
- Facilitate autolysis
- Require a secondary dressing

E.g: Purilon, Intrasite gel and Intrasite conformable
Hydrocolloids

- Semi permeable film, coated with sodium carboxymethylcellulose & gel forming agents, elastomer & adhesives
- Relieve pain - keeps exposed nerve ending moist
- Stimulate development of new blood vessels

- E.g.: Granuflex, Tegaderm Hydrocolloid, Duoderm extra thin
Alginates

- Dressing that are derived from algenic acid extracted from seaweed and creates a hydrophilic gel in the presence of exudate

- E.g.: Sorbsan Flat, Kaltostat
Hydrofibre

- Hydrophilic sheet composed of hydrocolloid fibres
- Fibres absorb exudate
- Limited lateral wicking of fluid

E.G.: Aquacel
Foam dressings

- Absorb exudate & allow moisture evaporation
- Provide warm, moist environment
- Used for light to heavily exudating wounds (depends on product used)

- E.g.: Allevyn (adhesive/ non-adhesive)
  - Allevyn gentle border
  - Tegaderm Foam adhesive
Film dressing

- Thin films of polyurethane, permeable to water vapour & oxygen, impermeable to water & micro-organisms
- Speed up epithelial regeneration

- E.g.: Tegaderm
Low- adherent dressings

- Designed to have a low adherence to wound bed and transfer exudate through dressing on to an absorbent dressing

- E.g.: NA Ultra, Adaptic Touch
Capillary Action Dressing

- Low Adherent
- Accelerated capillary action ‘pulls’ interstitial fluid from wound bed
- Consists of 3 layers:
  - Contact layer
  - Central layer
  - Third layer

Examples:
- Advadraw
- Advadraw spiral
Medicated Dressings

- The careful use of a range of medicated dressings can successfully treat patients with chronic wounds where the use of systemic antibiotics is contraindicated.

- E.g.: Iodoflex/ Iodosorb
- Activon Honey
- Activon Tulle
- Algivon Plus (alginate with honey
- Anabact (metronidazole gel 0.75%)
Silver dressings

- Provide antimicrobial barrier/ killing pathogenic organisms
- Release of silver ions
- Sustained release of silver 70-100 ppm
- Only use for 2 weeks, and if patient is not on antibiotics

E.g.: Silvercell NA, Aquacel AG ribbon
Honey

- Manuka Honey consists of both hydrogen peroxide & a component that comes from the nectar
- Anti-microbial/bacterial properties prevent microbial growth
- Draws lymph from cells by osmosis
- E.g.; Activon Honey, Activon Tulle, Algivon pplus
Absorbent Padding

- Ideally show be low adherent
- Some padding are more absorbent then others
- Wear time can therefore be increased
- Reduce dressing changes

Examples:
- Zetuvit E non-sterile
- Xupad sterile pads
- Kerramax care (superabsorbent padding)
Topical Negative Pressure
(Vacuum assisted Closure Therapy)

Action

• Topical Negative Pressure of 125mmHg applied to the wound

• Continuous or intermittent
Summary of Benefits of VAC

- Reduction of tissue oedema
- Decrease bacterial colonisation
- Removal of chronic wound fluid
- Wound closure
- Occlusion

**NB:** NECROTIC TISSUE MUST BE DEBRIDED BEFORE USING VAC
Larval Therapy

- Sterile Green Bottles (Lucilia sericata)
- Free Range or Bio FOAM
- Approximate cost £98 a flask of 200 larvae
- 2.5cm x 4cm kit £105
- Enjoy sloughy tissue
- Do not like hard black necrotic tissue
- Do not mind Purilon gel
- [www.biomonde.com](http://www.biomonde.com)
Prontosan Solution

- Designed to ‘knock out’ biofilms and debris

- **Contains:**
  - Betaine
  - Polyhexanide (PHMB)

- **Betaine** – gentle effective surfactant which is able to penetrate, disturb, clean and remove the biofilm & wound debris

- **Polyhexanide (PHMB)** – PHMB is highly effective broad spectrum anti-microbial agent that can reduce bioburden
Wound Classifications
Clinical appearance

Describes the type of material present in the base of the wound:

- Slough (yellow)
- Necrotic tissue (black)
- Infected tissue (green)
- Granulating tissue (red)
- Epithelialising (pink)
Necrotic Wound

**Aim of Dressing**
Rehydrate & loosen necrotic tissue

**Suggested Products**
- Hydrocolloid
- Hydrogel
- Honey Products
- Capillary Action dressing

**Alternative:** Sharp Debridement
Sloughy Wound

**Aim of Dressing**
De-slough & absorb exudate, preserve healthy tissue

**Suggested Products**
Hydrogel
Alginates
Honey Products
Cadexamer Iodine
Larval therapy
Capillary Action dressings
Granulating wound

Aim of Dressing
*maintain warm moist environment, promote granulation/epithelialisati*n

Suggested Products
*Alginates or Hydrofibre*
*NA/low adherent adhesive dressing*
*Hydrocolloid*
*Foam adhesives*
Epithelialising Wound

Aim of dressing
Encourage epithelialisation & reduce factors which may retard healing

Suggested Products
Hydrocolloid (thin)
Foam dressing
Vapour permeable film
Infected Wound

**Aim of Dressing**
Identify micro-organism, initiate appropriate treatment, systemic antibiotic if required

**Suggested Products**
- Alginate/ Hydrofibre
- Honey
- Cadexomer iodine
- Silver – use instead of antibiotics for 2 weeks only
Cavity Wound

Aim of Dressing
To encourage granulation of cavity from base of wound

Suggested Products
Hydro fibres or Alginates
Honey Products
Capillary Action dressing
Topical Negative Pressure
Thank you.....

- Any questions???
  - Web site:
    - www.ewma.org
    - www.worldwidewounds.com
    - www.journalofwoundcare.com
    - www.nice.org