



POD3PMD Podiatric Medicine

Wound Management
of the Lower Limb-
Wound dressings
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WOUND MANAGEMENT OUTLINE

- What is moist wound healing and why is it used?
- Characteristics of an ideal dressing
- Selecting a dressing to best meet your patient's needs
- Dressing groups – how, when and why
- Wound care troubleshooting – what to do when it's just not working

Moist wound healing

- Traditional wound management practices worked on 'drying up' wounds believing it prevented infection
- Winter's studies on in 1962 demonstrated faster healing if wounds were kept moist
- Water has been found to be critical to wound healing

Moist wound healing

- A dry wound bed = dehydration necrosis (scab formation) which is dead tissue that can not protect the wound
- In this state epithelial cell migration is retarded
- As chronic wounds are 'stuck' in a phase of wound healing in an environment detrimental to repair, a moist environment must be created to allow the creation of a state conducive to healing

Moist wound healing

- Moist wound healing research has shown that:
- Epithelialisation occurs more rapidly in a moist wound environment (*Alvarez, 1988*)
- Epithelial cells migrate more freely and stay viable for longer in an environment free of desiccation and crust formation (*Winter 1962*)

Moist wound healing

- Pain in the wound is reduced or eliminated in a moist environment where nerve endings are hydrated and air is expelled
- Autolytic debridement is facilitated in a moist environment

Moist v's Dry Summary

- MOIST:
 - Reduced risk of infection
 - Reduced healing time
 - Faster re-epithelialization
 - Better cosmetic result
- DRY:
 - encourages scab formation
 - delays healing
 - increases pain
 - often produces more scar tissue

Wound Dressings

MODERN WOUND DRESSINGS ARE
DESIGNED TO PROMOTE MOISTURE
BALANCE IN WOUNDS
THAT IS,
THE WOUND AND ITS SURROUNDS:
ARE MOIST
NOT WET AND MACERATED, AND
NOT DRY

Wound Dressings

Characteristics of an 'ideal'
dressing:

- Removes excess exudate
- Maintains high humidity
- Optimum PH (mildly acidic)
- Provides environment for healing
- Allows gaseous exchange

Wound Dressings

Characteristics of an 'ideal' dressing:
continued...

- Provides thermal insulation
- Provides barrier to pathogens
- Reduces odour
- Easy to apply
- Not excessively expensive
- Aids in removal of devitalised tissue
- Obliterates dead space

Wound Dressings

Characteristics of an 'ideal' dressing:
continued...

- Does not promote infection
- Does not shed
- Does not cause sensitivity or allergic reaction
- Easy to wear
- Reduces pressure / shear
- Is adaptable and doesn't interfere with function

Wound Dressings

■ A wound dressing should not:

- Cause increased pain
- Induce maceration
- Induce toxins, foreign particles or fibres into the wound
- Cause trauma on removal

Wound Dressings

- In managing wounds it is essential to fully assess a wound and address aetiological factors as a priority
- The dressing regime is important and must be monitored carefully, however it is only a portion of overall wound care

Wound Dressings

- Foot ulcers are unique due to the structure, biomechanics and functions of the foot and this must be considered in dressing choice
- The process and principles of healing are the same as all other tissue, but specialized care is required to address issues specific to the foot

Wound Bed Preparation

- As part of a wound management plan and as part of an ongoing dressing regime is consideration to wound bed preparation
- This concept relates to management strategies which facilitate endogenous healing of the wound in combination with facilitating other therapeutic measures

Wound Bed Preparation

- This involves assessment of the wound for non-viable tissue or other factors which suggest the molecular and cellular environment is less than optimal
- This should be addressed in your 'assessment of the wound' and factored into the management plan

Wound Bed Preparation

- TIME acronym (*Falanga, 2004*) represents this:
- T = tissue, non-viable or deficit
- I = infection or inflammation
- M = moisture imbalance
- E = edge of wound non-advancing or undermined

Wound Bed Preparation

- T = Tissue management through debridement
- I = Infection or inflammation
(need to determine cause and evaluate effect on wound, dressing choice is important in bacterial balance)
- M = Moisture (evaluate reason for imbalance and address where possible, dressing choice is important)
- E = Edge of wound non-advancing or undermined
(identify issue and cause, look for build up of debris, scab or wound drying, hypergranulation due to trauma, infection or malignancy, bacterial burden)

Wound Dressings

- How to select a wound dressing that best meets your patients needs
- There are numerous dressings available on the market
- Can be described as fitting into 'Generic groups'
- Choice depends on a number of factors:
 - Status of moisture balance
 - Contents of base - pink, red, yellow, green, black

Wound Dressings

- Level of exudate
- Presence of infection
- Slough, necrotic tissue and debridement needs
- Ability to perform dressing changes
- Pain levels, Odour, Appearance, Room in shoes
- Cost
- Other patient needs

Wound Dressings

- Generic Dressing Groups:
 - HYDROCOLLOIDS (ABSORBENT)
 - Incorporate absorbent particles bound to a polymer
 - Moisture-retentive dressing
 - Particles convert to gel
 - HYDROGELS
 - Consist of polymers that expand in water
 - Designed to hydrate wounds
 - FOAMS
 - Highly absorbent
 - Still maintains moist wound environment

Wound Dressings

- Generic Dressing Groups:
 - SEMI PERMEABLE FILMS
 - Adhesive, thin transparent film
 - CALCIUM ALGINATES
 - Seaweed
 - Absorbant and haemostatic
 - ANTIMICROBIAL (silver dressings, cadexomer iodine, antiseptic tulle gras)
 - May help with wound colonisation

Wound Dressings

- Generic Dressing Groups:
 - HYDROFIBRE
 - Fibres that convert to gel on contact with exudate
 - HONEY
 - OTHER (silicon gel sheets, gauze, non-adherent dressings, odour absorbing dressings, hypertonic dressings, pressure relieving additions)
 - *ALSO CONSIDER WOUND CLEANSING AGENTS
 - E.g. saline, hydrogen peroxide

Wound Dressings

- For each major generic group list:

Uses

Advantages

Contraindications

Disadvantages

Application details
(how to apply, when to change etc)

Wound Management Summary

- Refer to Carville, Guidelines for Management of Chronic Wounds
 - P197-237 for dressing classes

Carville, K. (5th edition). Wound care manual. Western Australia: Silver Chair Foundation, Incorporated. Pg 91-92

<http://www.silverchain.org.au/html/WoundCareForm.htm>

Exam!

Sample question one

- Mrs Chippie Friday is a 63 year old lady with a 16 year history of type 2 diabetes (now insulin requiring), who presents with moderate ischaemia of both limbs (ABI 0.7) and profound neuropathy (unable to sense either monofilament or vibration). Her main complaint is the presence of a large, deep, hyperkeratotic and malodourous lesion under the 2nd metatarsal head of the left foot.
- Discuss the aetiological factors which may have contributed to this ulcer.
(6 marks)
- With reference to the principles of wound management, devise a management plan for the care of Mrs Smith.
(9 marks)

Sample question one

- Mrs Chippie Friday is a **63** year old lady with a **16 year** history of **type 2 diabetes (now insulin requiring)**, who presents with **moderate ischaemia** of **both limbs** (ABI 0.7) and **profound neuropathy** (unable to sense either monofilament or sharp stimuli). Her main complaint is the presence of a **large, deep, hyperkeratotic** and **malodourous lesion** under the **2nd metatarsal head** of the left foot.

Suggested response (one)

- **Discuss** the **aetiological factors** which may have **contributed** to this ulcer.
(6 marks)
- Key words are underlined and bold - read the questions and what they are asking carefully
- Discuss is asking for some dialogue around the question such as explain, describe, justify
- This question asks for the likely major and contributing causes for ulceration
- Brownie points would be gained for highlighting what initially caused it v's what is impairing its healing

Suggested response (one)

- Major causes - profoundly diminished sensation (as indicated by tests) in combination with pressure (as indicated by site and HK)
- May talk briefly about the pathogenesis of neuropathic ulceration
- Contributing factors include - diabetes status (insulin req / duration) more prone to infection, important co-morbidities, higher weight

Suggested response (one)

- Would also want to establish role of footwear, activity type, co-morbidities, nutrition (it's worth including that you would request information if it is important but not included)
- While PVD and infection (indicated by the odour and possibly depth esp if probe to bone possible) may not have been the initial cause of the ulcer they may be contributing to ulceration through impairing healing

Suggested response (one)

- With reference to the **principles of wound management**, devise a **management plan** for the care of Mrs Smith. **(9 marks)**
- This question is more heavily weighted suggesting a more elaborate, complex, in depth response
- Asking for you to;
 - demonstrate your understanding of overarching fundamental principles
 - show your ability to formulate a holistic plan
 - demonstrate your knowledge on specific treatment options, and
 - Illustrate your ability to select appropriately for the presenting circumstance (with justification given)

Suggested response (one)

- Can structure this a few ways either by principle or by Mx plan
- Principles -
 - Treat aetiology – pressure (offloading, shoes, activity, weight reduction, HK debridement *****Be specific***** eg: 20mm adhered felt u'd plantar covers), can't treat sensation but diabetes care, full assessment & management of PVD
 - Manage infection – diagnosis of level and type, antibiotics (ref to GP), patient education and care, dressing choice *****Be specific*****

Suggested response (one)

- Create optimal wound environment for healing – debridement of HK, select moist wound dressing choice due to possible infection, likely moderate levels of exudate and depth (i.e space to fill), iodisorb + foam changed every day or 2nd day
- Plan to maintain the healed state – ongoing pressure reduction, podiatric care and diabetes foot assessment
- Other points – review times, referrals and use of MD team, documentation

Review

Vascular Disorders
Wound Management

Vascular Disorders

- Arterial disorders
 - Chronic
 - Atherosclerosis
 - Acute
- Venous disorders
 - Chronic
 - Chronic venous insufficiency
 - Oedema
 - Acute
 - Deep vein thrombosis
- Lymphatic disorders

Wound Management

- Phases of wound healing
 - Complex physiology
- Chronic wounds
 - Manage primary aetiology
 - E.g. Neuropathy, ischaemia, venous, other
 - Wound bed preparation
 - Moist wound dressing principles

Questions!

Remember- Anita Raspovic is taking over June 2nd.