Understanding chronic wound management: part II

Dressings are a huge part of the NHS budget, estimated at between £2.3bn and £3.1bn in 2005/06 — 3 per cent of the total health expenditure — and pharmacists can advise on their prescribing and use. In part 2 of our article on wound management, Jane Flynn looks at antimicrobial dressings and alternative options promoting healing in chronic wounds.

It must be stressed that dressings do not heal wounds but, if selected correctly, they will provide an environment conducive to healing. A dressing should be selected by assessing a wound (ie, tissue type in the wound bed; see Part I, Panel 2, PJ, 27 June, p777–80) and deciding which criteria the dressing needs to meet (ie, absorbent, desloughing, antimicrobial). An ideal dressing would:

- Maintain a moist environment
- Provide thermal insulation to the wound surface
- Be clinically effective
- Be absorbent
- Be safe to use
- Be comfortable and acceptable for the patient
- Be impermeable to bacteria
- Allow gaseous exchange
- Be easily removed (with no pain or trauma)
- Be easy to apply and wear
- Be non-flammable
- Be free from particulate wound contaminants
- Be safe to use
- Be absorbent
- Be non-flammable
- Be free from particulate wound contaminants

An ideal dressing would also be available in varied shapes and sizes to accommodate wounds in different locations. However, this is not often the case and nurses have become skilled at adapting various dressings to make them fit for purpose (see Panel 4, p42).

It is important for dressings to meet the needs of patients, who must feel confident that they will stay on, not leak, contain any malodour, feel comfortable and not cause pain on removal. Expertise on different dressings and applications is invaluable for achieving these goals but such achievement is not always possible for every patient.

Antimicrobial dressings All wounds will be colonised with bacteria but unless there are signs and symptoms of infection, this is of no clinical significance. For wounds that are infected, systemic antibiotics are indicated as well as an antimicrobial dressing. Topical antibiotics, such as mupirocin and metronidazole are rarely used — they are not generally recommended because of resistance and because sensitivity reactions can delay healing and damage tissue. However, 0.75 per cent metronidazole gel is always possible for every patient.

Antimicrobial dressings may be used prophylactically in patients who are at higher risk of infection and its complications (eg, those who are immunocompromised or those with diabetes) but they should not be used indiscriminately because this is unnecessary and they are relatively expensive.

Iodine dressings Iodine dressings come in two forms, povidone-iodine (elemental iodine and a synthetic polymer) and cadexomer-iodine (iodine is released from the starch paste when it comes into contact with wound exudate). Iodine is effective against meticillin-resistant Staphylococcus aureus (MRSA) as well as other bacteria.

Iodine (non-adherent dressing with 10 per cent povidone iodine) can be used only under medical supervision in patients with thyroid disorders and children under six months and should not be used in pregnancy, breastfeeding or patients with kidney disease. It can be folded or cut into four layers and placed onto the wound (a secondary dressing is required). The dressing needs to be changed when it changes from brown to white. It can be used as prophylaxis for infection in minor burns, abrasions and traumatic skin loss (eg, pretilial lacerations — shin wounds). Often the skin here is too fragile to stitch and the skin edges are secured by steristrips, wound...
Panel 4: Adapting dressings

Dressing wounds can be likened to an art form at times, with the challenges of dressing wounds in awkward places and each patient with their own unique body shape. Problematic areas include the feet, under the arms and the sacrum. In addition, although some wounds may be easy to dress they may not be conducive to allowing dressings to stay in place. Examples are wounds on joints or moist areas and those close to a stoma, open fungating wounds in cancer patients, and malodorous or highly exuding wounds.

Some dressings can be tailored to the area to be dressed by cutting, but their efficacy may be affected. Manufacturers make dressings to fit some parts of the body, such as heel-shaped dressings and sacral dressings but, with some ingenuity, these can sometimes be used or adapted for use on other parts of the body. For example, an Allevyn heel dressing can be snipped at intervals along the central fold and can be used as a dressing on a hand. It can also be turned inside out and some cuts made to the central fold so it can be applied to the arm, or it can also be used as a scrotal dressing. Other adhesive heel dressings can be used for the armpits or elbows.

Similarly, hydrocolloid dressings can be cut at intervals, leaving a central portion uncut, to produce a fringe on either side and applied to ears. They can also be cut into strips and used crosswise to aid adherence in areas prone to a lot of movement.

Sacral wounds can be especially difficult to dress and often the dressing will not last long, either due to incontinence or friction and pressure on the area simply from the patient sitting, lying down or moving. The usual dressing type used in this area is either a hydrocolloid or a foam. Manufacturers have designed sacral dressings. These are triangular and the apex of the triangle is meant to be applied nearest the anus. However this means that any discharge from the wound drains towards the smallest part of the dressing and it may need to be changed daily because the seal is not always maintained. Some practitioners will apply the dressing upside down to extend its life or apply an alginate or hydrofibre directly to the wound to increase absorbency.

Ensuring that the peri-wound area is completely dry is essential or the dressing will not maintain a satisfactory seal and exudates will find their way out. Sacral wounds also have the disadvantage of being close to moist hairy areas. Removal of hair may be advantageous.

Honey dressings

Honey has been successfully used for wound care in many cultures for thousands of years. Medicinal honey is sterilised through gamma irradiation. Its main properties are that it:

- Provides moist wound healing environment
- Is an antimicrobial
- Eliminates odour
- Is an effective debridging agent
- Is anti-inflammatory
- Acts as a stimulant for new cell growth

Honey dressings have seen a resurgence of popularity. I find that the public often asks for them to be used because honey is a natural product and press reports have highlighted its effectiveness against MRSA. It is also effective against Pseudomonas aeruginosa, Enterococcus species, Staphylococcus aureus and fungi. Some patients experience pain when it is applied. This is usually transient but some people cannot tolerate it. Honey dressings can be effective for eliminating malodour in cancerous fungating wounds. It can also effectively deslough these wounds and reduce the exudate.

Honey can be applied from a tube (eg, Medihoney) but this is not suitable for all wounds because it may become too runny as it warms up. Honey is also available combined with alginates (eg, Urgotul SSD) which will not adhere to the wound, and the dressing should not be used in people who are allergic to bee stings or bee products.

Wound cleansing

Not all wounds need cleaning, but if there is debris or excess exude around a wound it is advisable to remove these. Excessive
Wound exudate can damage intact skin around the wound, leading to skin breakdown, possible extension of the wound and infection.

Wound cleansing can be a contentious issue because the associated reduction in temperature in the wound bed has been proven to delay cell division and slow healing. Any solution used should, therefore, be at body temperature. In addition, the wound should not be exposed to prolonged immersion in non-isotonic solutions because fluid will be absorbed by the cells and can cause damage. Furthermore, solutions such as chlorhexidine and cetrimide have been shown to damage granulating tissue by reducing the blood flow to the wound bed.

The use of warm tap water (eg, through showering or other application) to cleanse chronic wounds, particularly leg ulcers and some acute wounds (eg, pilonidal sinuses), is accepted practice. This also allows patients to soak a dressing so removal is easier and less painful, particularly if the dressing has adhered to the wound bed. In addition, patients tend to feel better (psychologically) after showering.

Gauze and cotton wool are not recommended to clean wounds because they can shed fibres. These can increase the risk of infection and provoke a prolonged inflammatory response. Newly formed granulation tissue can also be damaged if the wound is swabbed using either gauze or cotton wool.

Wound exudate, faeces and urine are all damaging to the skin if left in contact even for short periods and cause patients great distress through pain and discomfort. The use of skin protection products — either creams (eg, Cavilon, Medihoney barrier cream), sprays (eg, Cavilon) or wipes (eg, LBF) — can be invaluable for leaking wounds, as well as stoma care.

Changing and removing dressings As a general rule, most dressings should be changed weekly if a wound is dry or as soon as fluid comes through (“strikethrough”). Every time a dressing is changed, a layer of cells is removed, temperature in the wound decreases and the wound is exposed to airborne contaminants. Some dressings, such as hydrogels, need to be changed more frequently. Some wounds, such as diabetic foot wounds and infected wounds, will also require more frequent attention (ie, at least two or three times a week).

As already discussed, if any dressing is stuck to the wound bed, then it is advisable to soak the dressing to facilitate removal. If adhesive dressings are pulled off without care epidermal stripping can result. With film dressings this can be avoided by stretching the dressing almost horizontal to the skin to break the seal.

If a patient has fragile skin then the use of soft silicone dressings (eg, Mepilex or Allevyn Gentle) is advisable. With some foam dressings using a moistened gauze swab to gently loosen the adhesive can help.

Medical adhesive removers, which will aid dressing removal without pain are available on prescription.

Other wound management options For some wounds, healing can be accelerated by using topical negative pressure or larvae therapy.

Topical negative pressure It has been shown that applying negative pressure, either continuously or intermittently, to an open wound can speed healing. Topical negative pressure (TNP) is a form of wound therapy that uses a vacuum across the wound (which is sealed with a film) in conjunction with either a specially designed foam dressing or moistened gauze, connected to a vacuum machine by tubing. The main aims of TNP therapy are to:

- Stimulate granulation tissue
- Control exudate
- Increase blood flow to the wound
- Reduce oedema
- Stabilise the wound and draw the wound edges closer together
- Reduce bacterial load
- Maintain a moist healing environment

The most commonly used product is vacuum-assisted closure (known as VAC therapy). This uses two types of foam: Granufoam, which is black hydrophobic polyurethane foam (see Figures 1 and 2), and Versfoam, which is white polyvinyl alcohol foam. It is recommended that these dressings are changed every 48 hours, or more often if the wound is infected.

Granufoam is applied to wounds where there is good visual access. However, the foam can break, leaving small pieces within the wound bed, if the dressing is not changed often enough or the wound granulates quickly. Moreover, granulation tissue can grow into the foam, causing pain and trauma on removal. If this happens despite changing the dressing...
as recommended, the use of a non-adherent silicone dressing can be used as an interface between the foam and the wound to prevent this recurring. Versfoam is used for wounds where the wound is “undermining” (the wound is large than the break in the skin, extending further underneath) or if there is a sinus. The Versfoam has a high tensile strength so does not break when it is pulled.

Granufloam or Versfoam are applied directly to the wound and covered with a transparent semi-occlusive drape to form a seal. A hole is then cut into the drape and a suction (TRAC) pad and tubing are placed over this hole and the tubing is connected to a canister onto the VAC unit.

The unit produces controlled suction across the wound. The usual setting is 125mmHg (pressure is set to 150mmHg for Versfoam because it is denser) either continuously or intermittently (eg, the unit can be set to apply pressure in cycles of five minutes on then two minutes off). It is believed that intermittent pressure produces more granulation tissue. They are also effective against a wide variety of bacteria. They are also effective against a wide variety of bacteria.

Further reading

Maggots for larvae therapy for centuries. Maggots for larvae therapy are bred from the green bottle fly, Lucilia sericata, in sterile conditions by Zoobiotic in Bridgend, Mid Glamorgan. They are available as “free range” or in a dressing pouch (LarvE BioFoam) to be placed in the wound, which is then dressed.

Maggots can effectively debride necrotic and sloughy wounds down to a healthy wound bed in a relatively short time and often remove the need for surgical debridement. The maggots produce proteolytic enzymes, which will break down dead tissue by liquefying it. They then ingest this solution. They can kill bacteria and they promote the formation of granulation tissue. They are also effective against a broad spectrum of bacteria, including MRSA. The peri-wound area must be protected during therapy because the proteolytic enzymes produced can irritate healthy skin.

Maggots have a short shelf-life and have to be used on the day of delivery or they will die. The larvae are approximately 1 to 3mm long when they are applied and following the treatment they will be 8 to 10mm long.

Maggots are not a first choice for many practitioners or patients because of the thought of dealing with them can be repulsive. However, many patients will use them if they are given information that the therapy will be quick, efficient and effective. Normally the maggots are applied for three to five days and will need close monitoring. They need oxygen to breathe so must not be covered with an occlusive dressing, such as a film dressing. If the wound is heavily exuding then the outer dressing must be changed or the maggots will drown.

Wounds on pressure points must be protected or the maggots will be squashed.

Some patients experience more pain, which usually occurs on the second or third day of therapy. This is thought to be associated with pH changes in the wound. I usually tell patients to expect this and to use a painkiller, such as paracetamol, if needed. Other patients, however, experience a decrease in pain as the maggots eliminate infection. Maggots also reduce malodour in the wound because they remove necrotic tissue and bacteria.

A common worry is that the maggots will turn into flies in the wound or that some may be left in the wound. These concerns are unfounded. The maggots take 10 to 14 days to complete their life cycle and they are removed from the wound after three to five days and disposed of in clinical waste. Once the food source has been removed from the maggots they will fail to survive.

Summary

Chronic wounds present a huge challenge to the NHS in terms of human resource and financial considerations. By having good knowledge of healing, wound management and related products and encouraging responsible prescribing and use of appropriate products, pharmacists can help prevent delayed healing, enhance quality of life and improve cost-effectiveness.

References


Larvae therapy

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