In part 1 of this 2-part series, we discussed principles of palliative care to help understand the goals of treatment in developing a plan of care. This article, Part 2, aims to provide knowledge of practical topical wound management by common wound etiologies and symptoms among persons who would benefit from palliative wound care.

PALLIATIVE WOUND CARE

Part 2: Application of Principles

The home healthcare or hospice nurse must develop an understanding of the common wounds experienced by patients in the home healthcare and hospice settings. This includes common etiologies, pathology, indications, and contraindications for treatment. In addition, the home healthcare or hospice nurse should recognize that wound prevention is the foundation of any wound care program or practice. Unfortunately, the prevention of all wounds may not be possible, such as malignant wounds, arterial ulcers, or some pressure ulcers at the end of life (Langemo et al., 2010). Patients in the home healthcare or hospice setting can have acute or chronic wounds after hospitalization or debilitating illness. These patients may not have the capacity to heal quickly or the primary goal is not healing such as at the end of life. It is therefore necessary that the home healthcare nurse has the knowledge and skill to provide excellent wound care among this population. This article will discuss palliative wound care principles by common types of wounds and then practical management of specific symptoms regardless of wound etiology.

Literature Review

Although literature is abundant in palliative care, specific wound care research and clinical practice guidelines are not readily available. A literature review of "palliative wound care," "care for malignant and fungating wounds," and "wounds at end of life" in Medline, PubMed, and CINHAL was completed. Results showed minimal changes in the management of these types of wounds from 1990 to present date (Bauer et al., 2000; Ivetić & Lyne, 1990; Langemo, 2012). Furthermore, most literature available is anecdotal or low-level evidence-based recommendations. Often palliative wound care uses creative improvisation based on existing wound healing knowledge.

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REA/REDUX Pictures

General Principles

Maintaining a moist wound environment is one of the main principles of wound care. This is true for palliative care in most instances. Moisture balance helps to promote a clinically clean environment, allowing healing to occur if possible, and can reduce pain (Abdelrahman & Newton, 2011; Spear, 2012). Maintaining moisture balance requires the provider to select dressings that keep some moisture in the wound bed, not allowing it to dry out, and conversely not allowing copious exudate to collect in the wound bed. However, in certain circumstances such as dry stable eschar or dry gangrene, the nurse would want to avoid moistening these wounds. Keeping these wounds dry maintains a protected environment with minimal symptoms requiring little intervention.

Gentle wound cleansing with each dressing change will remove bacteria and other debris and aid in maintaining a clean wound environment. Generally, with each dressing change, it is a good idea to use a liquid film barrier wipe around the wound where the dressing will adhere to the skin. This protects the periwound skin from the trauma of dressing changes, decreases maceration, and helps the dressing to remain in place longer (Woo et al., 2009).

Wounds in Palliative Care

Pressure Ulcers

Pressure ulcers are the most commonly reported wound in hospice and palliative care (Maida et al., 2012). Prevalence is estimated between 13% and 47%, although the true number is unknown (Graves & Sun, 2013). Not only are patients admitted to home care or hospice services with existing pressure ulcers but they are at an increased risk for development of these as well. An appropriate pressure ulcer prevention program modified to meet the needs of the palliative care patient is vitally important. The Braden Scale for Predicting Pressure Sore Risk is a clinically validated risk assessment tool with subscores identifying risk in six areas: (a) sensory perception, (b) moisture, (c) activity, (d) mobility, (e) nutrition, and (f) friction and shear (Bergstrom et al., 1987). A prevention program based on the Braden Scale might consist of interventions focusing on each of the subscores (VandenBosch et al., 1996). For example, the subscore interventions for mobility includes frequent turning and repositioning. A palliative care prevention program might alter the turning frequency due to patient pain symptoms and instead include obtaining a higher level pressure redistribution support surface, using pillows to assist with turning/placing under heels, and decreasing turning frequency to alleviate the pain associated with turning. A general concept in prevention and care is that each plan is tailored to a patient's specific goals within their limitations and preferences for care (Langemo et al., 2010). Documentation should reflect the plan and rationale. Additionally, it is important to recognize that risk assessment scales do not account for the physiologic decline among patients who are end of life or with significant physiologic impairment. The nurse must understand that the patient may be at higher risk for developing a pressure ulcer than the risk scale had identified. In these cases the nurse must use his or her clinical judgment in determining increased level of risk and associated appropriate prevention interventions.

Once a pressure ulcer has been identified, topical care must be addressed. Good symptom management is also reflective of good wound care practices. Therefore, these symptoms can usually be addressed with minimal alterations to the nonpalliative protocol (Langemo, 2012). For example, increased drainage and odor usually stem from topical bacteria. Antimicrobial dressings such as silver or cadexomer iodine not only will reduce the bacterial bioburden but can also increase the time between dressing changes, which would decrease pain (Institute for Clinical Systems Improvement, 2012). This single intervention is easily adapted and addresses all three symptoms: pain, odor, and drainage.

Malignant and Fungating Wounds

The most common admission diagnosis of hospice patients (42.9%) and the fourth most common home healthcare diagnosis (3.9%) in 2007 was malignant neoplasm (Caffrey et al., 2011). Five to 19% of all patients with a diagnosis of malignant neoplasm will develop a skin lesion (Sibbald et al., 2011). A malignant wound can result from fungating tumor cells or an ulcerating malignant cutaneous wound. The term "fungating" specifically describes a condition of proliferation that arises when malignant tumor cells infiltrate and erode the barrier properties of the skin. Fungating wounds will rarely heal and will often continue to grow and evolve, presenting challenges to the care providers and patient (Goldberg & McGinn-Byer, 2000). A fungating wound grows quickly and presentation resembles a proliferative lesion with a cauliflower-like appearance. Ulcerative lesions present as a deep crater with raised margins. Both wound types trap necrotic tissue allowing the proliferation of odor and drainage caused by bacteria. Symptoms burden is the most important factor impacting quality of life among persons with malignant wounds (Lo et al., 2012). The most common symptoms associated with an ulcerating or fungating tumor are pain, mass effect, esthetic distress, exudate, odor, pruritus, bleeding, and crusting (Maida et al., 2009). Topical wound management for malignant wounds includes the selection of dressings that addresses as many of these issues as possible to promote better quality of life. Figure 1 is an example of a malignant wound protocol.

Skin Tears

Skin tears are the result of shearing and friction forces, which separate the epidermis from the dermis (LeBlanc et al., 2011). Susceptibility to skin tears is a direct result of less elasticity as the rete ridges and pegs in the basement membrane

of the dermis flatten out resulting in skin tears (LeBlanc et al., 2011). Meticulous skin care at end of life not only is important for the integrity of the skin but also provides an opportunity for assessment and interaction with the patient either by the home healthcare or hospice nurse or by patient caregivers. Skin care should include limited bathing based on patient preference as bathing tends to dry the skin and dry skin is more prone to skin tears. During bathing, avoid overdrying by using warm water, not hot, and bathe the patient in a warm place without drafts. Using a pH-balanced soap will avoid stripping the skin's protective acid mantle and application of lubricants such as protective barrier creams and ointments will aid in maintaining supple skin (Holmes et al., 2013).

Best practice wound care in the event of a skin tear includes replacing and securing the epidermal flap if possible (LeBlanc & Christensen, 2011). The application of a nonadherent gauze dressing or low-adherent dressing such as a silicone dressing or low-tack foam dressing will prevent trauma upon removal. When removing the dressing, gently lift it toward the flap opening, preventing the skin from lifting up again. Placing an arrow on the dressing for removal direction is an easy reminder that can prevent trauma (Leblanc & Christensen, 2011). It is important not to apply tape to the skin and, if it is necessary, secure dressings such as gauze roll/wrap to itself. The use of tubular bandaging such as stockinette is very helpful. Use of any adhesive-based dressing such as hydrocolloids or transparent films is not recommended (Baranoski & LeBlanc, 2011).

Venous Leg Ulcers

Legs ulcers are common among patients receiving home healthcare nursing. Recent reports of leg ulcer prevalence range from 13% to 21% of patients at home or receiving home healthcare (Walker et al., 2013; Woo & Cowie, 2013). Venous insufficiency, or stasis, is when blood flow is slow or unable to return back to the heart (O'Meara et al., 2012). This stasis and pooling of the blood in the feet and lower legs triggers an inflammatory process resulting in leukocyte activation, endothelial damage, platelet aggregation and intracellular edema, and ultimately wound formation (Collins & Seraj, 2010). The most bothersome symptoms of venous stasis and leg ulcers are pain, itching, and drainage. Possible complications include cellulitis, osteomyelitis, and malignant changes (Collins & Seraj, 2010). Compression therapy facilitates venous return by compressing the veins and moving blood up toward the heart and thereby helps alleviate symptoms. Although compression is the gold standard for prevention and treatment of venous insufficiency, it may not be practical or appropriate in the palliative care patient (Kunimoto et al., 2001).

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Interventions for symptoms of venous ulcer in the palliative care patient include elevation of the legs to a level above the heart two to three times per day to reduce edema, modified compression therapy to reduce pain and edema, topical dressings to absorb exudate, and meticulous skin care. Elevation of the legs works through simple gravity. Some palliative care patients are unable to lie in bed with legs elevated because of respiratory or cardiac disease. Using pillows or wedges in a fully extended reclining chair is better than the patient sitting with their feet on the floor all day. Annecdotally, even light compression wrapping may improve the edema enough to reduce the amount of wound exudate and pain. Skin care is a vital element to reduce itching and prevent bacterial invasion causing cellulitis. As with skin tear management, use of a pH-balanced soap and avoidance of drying the skin are recommended. Patients with venous insufficiency are also more susceptible to sensitivities to lanolin, aloe, and perfumes, so application of moisturizing creams without any of these ingredients is recommended (Wound Ostomy Continence Nurses Society, 2011).

Diabetes-Related Foot Ulcers

More than 60% of nontraumatic lower limb amputations in the United States occur in people

with diabetes. In 2006, about 65,700 nontraumatic lower limb amputations were performed. In 2009, the hospital discharge rates for foot amputation were 0.5 to 0.7 per 1,000 diabetic population for people 64 and up (Agency for Healthcare Research and Quality, 2012). Most diabetes-related lower limb amputations can be attributed to infection of foot ulcers. To reduce the risk of infection and subsequent amputation, palliative care patients can be best treated in a manner that controls symptoms and prevents infection. Meticulous skin care again plays an integral part of preventing infection. Patients with diabetes are more prone to fungal foot infections (Casqueiro et al., 2012). Drying feet well and using toe spacers can reduce this risk. Keeping the skin hydrated can also prevent development of cellulitis but avoid getting lotions between the toes. Topical wound care to existing diabetes-related foot ulcers is based on moist wound healing principles, ulcer characteristics, goals and needs of patient and caregivers, and cost and ease of use (Wound Ostomy Continence Nurses Society, 2012). Specific palliative care interventions should focus on symptoms most bothersome to the patient but with the standard of care in mind to prevent complications. Standard care interventions include offloading (taking pressure off the foot) and using moist topical wound care that can facilitate autolytic debridement by the body if needed and possible.

Arterial Leg/Foot Ulcers

Arterial leg and foot ulcers, also known as ischemic wounds, are usually caused from atherosclerosis or an occlusion resulting in poor blood flow. Ischemia due to arterial disease can result in tissue loss, nonhealing wounds, infection, and ultimately amputation (Bonham et al., 2009). The lower extremities and wounds can be very painful because of the lack of blood flow, which is called claudication. If the impairment of blood flow is not corrected, wet or dry gangrene can develop. Aggressive management of lower extremity arterial disease, such as surgery, may not be within the patient's or family's goals. Some pharmacologic therapies may reduce pain by improving blood flow such as cilostazol; however, there are several important contraindications such as congestive heart failure and the concurrent use of diltiazem (Ferreira & Macedo, 2010).

Topical interventions for arterial leg/foot ulcer palliative care patients do not vary far from the nonpalliative care patient. Simple noninvasive home instructions can help the patient such as elevating the head of the bed 4 to 6 inches so that when the patient is lying in bed the legs are in a semineutral position or encouraging appropriate activity to reduce symptoms of claudication (Wound Ostomy Continence Nurses Society, 2008). Specific topical therapies to open wounds (that are not gangrenous) should include dressings that incorporate moist wound healing principles when there is preexisting moisture. A balance of moisture will help reduce pooling of wound exudate. Use of hydrogels, collagens, or cadexomer iodine has been reported with success (Williams, 2009). However, use of one specific topical dressing has not been recommended over another as long as principles of moist wound care are implemented. Conversely, in patients who have dry gangrene, the goal is to maintain a dry environment decreasing the need to manage moisture-based symptoms such as bacterial proliferation, odor, and excess exudate. Dry gangrene can be maintained by leaving the area open to air, painting the dry necrosis with skin prep or betadine to reduce odor-causing bacteria, and protecting the area from trauma to reduce the risk of autoamputation.

Symptom Management

Once an understanding of the type of wound is established, the next step is to understand and develop a plan addressing specific symptoms (Table 1). Symptom management is aimed at improving quality of life and is subsequently reflective of good wound care practices. If the patient has the physiologic capacity to heal, good symptom management will promote this process. The basis of good wound care is the promotion of a clinically clean and protected wound environment. If wounds are in a highly visible area such as the face and neck, cosmesis and appearance should be considered. The goal of low-profile, conforming dressings that do not limit physical mobility is to reduce social isolation and improve quality of life. Appropriate dressing selection is based on the needs of the patient and addresses identified goals.

Table 1. Common Symptoms With Intervention Options

Symptom	Intervention
Wound pain	Remove and reduce causative factors (i.e., pressure, friction, trauma from dressings sticking, frequent dressing changes). Appropriate systemic analgesia including long- and short-acting medications. Premedicating before dressing changes. Procedural time-outs (Price et al., 2007). Topical analgesia such as morphine IV 10 mg/mL in 8 g of hydrogel. It is not typically absorbed systemically (Ribeiro et al., 2004; Zeppetella et al., 2003). Oral steroids to reduce pressure from tumor on adjacent organs and nerves (Cleary & Lawson, 2009; Ferrell et al., 2008). Nonadhesive contact layers such as silicone. Only change top layers and leave contact layer in place as long as possible.
Pain with dressing changes	Reduce frequency with dressing changes by choosing extended wear dressings (foam, alginates, silver based, etc.). Use silicone-based adhesive dressing and reduce the use of traditional adhesives. Create a window or border around the wound with a hydrocolloid if traditional adhesives must be used. Only place the adhesives on the hydrocolloid to reduce topical epidermal stripping. Keep the window or border in place as long as possible. Use light wrapping when possible or dressing alternatives such as the creative use of t-shirts to hold nonadhesive dressings in place.
Odor	Gentle wound irrigation with each dressing change. Do not scrub. Dakin's solution starting with 1/4 strength either irrigation or moist packing (Cornwell et al., 2010; Levine, 2013). Metronidazole (0.75–1%) applied topically to wound bed (Alexander, 2009; Chrisman, 2010; Seaman, 2006; O'Brien, 2012). Silver-based dressings (Seaman, 2006). Topical cadexomer iodine-based dressings (Vermeulen et al., 2010). Charcoal or carbon dressing. These cannot get wet or they will not be active. Dryer sheets placed over dressing not touching the skin. Kitty litter, open coffee cans, or open dryer sheet boxes placed under the bed.
Exudate	Highly absorptive dressing such as foams, alginates, hydrofibers, and the like. Combine products to maximize wear time. Reduce topical bacterial loads with same treatments as odor. Reduce tissue volume from edema by reducing dependency by elevation or wrapping.
Bleeding	Pinpoint bleeding only—silver nitrate applied topically to small area. Gently irrigate with normal saline to prevent continuous action of silver nitrate. Alginates and silver alginates with light pressure applied. Do not immediately remove. Over-the-counter clot forming medications such as QR "wound seal" (Biolife, LLC, Sarasota, FL). Epinephrine 1:1,000 applied to gauze and slight pressure placed on bleeding areas. This can cause local necrosis (Mcdonald & Lesage, 2006). Surgicel, surgifoam, or clot foam. Sucralfate 1% paste applied topically (Harris & Noble, 2009). Aminocaproic acid applied topically (Harris & Noble, 2009). Prevention of trauma with dressing changes. Maintain a moist wound environment to reduce cracking and dressings from sticking. Supportive care, dark towels, and sheets.
Itching	Remove irritants such as adhesives and chemical irritation from wound exudate (Elmariah & Lerner, 2011). Systemic medications such as diphenhydramine and hydroxyzine (Elmariah & Lerner, 2011; Eschler & Klein, 2010). Topical medications such as doxepin hydrochloride, diphenhydramine, and steroids. Topical anesthetics such as EMLA cream, lidocaine, capsaicin, and menthol (Elmariah & Lerner, 2011; Yosipovitch & Samuel, 2008).
Appearance	Develop dressing solutions for optimal cosmesis. Skin-colored dressings. Low profile when possible. Nonadhesive and conforming dressings. Reduce the use of dressings that limit physical mobility.

CASE STUDY

Mr. B, 50-year-old, was diagnosed with large B cell lymphoma 2 years previously. His comorbidities included hypertension and coronary artery disease. Over 18 months, he underwent six rounds of different chemotherapies, which included two investigational drugs. The last chemotherapy session ended in December 2012. In November 2012, a lesion developed in the right clavicular region. The wound grew at a rapid rate and began having excessive drainage with the characteristic odor that is associated with fungating wounds. He received 13 radiotherapy treatments to reduce the tumor size and control the drainage. The last treatment was given mid-December 2012. Treatments were beneficial for only a short time. By December 24, the wound was growing and measured 3 cm diameter and 1.5 cm raised.

Mr. B was admitted to hospice in March 2013 for palliative care related to fungating wound and pain management. At admission, the right clavicular lesion measured 15 cm × 10 cm × 5 cm. The tumor had a red cauliflower appearance, with the largest nodule being necrotic. The wound had moderate malodorous drainage. This odor caused the patient to be extremely self-conscious and he limited his activities outside of the home to emergencies or physician visits only. The odor also affected his already poor appetite. After recommendations from the hospice staff and consulting a certified wound ostomy continence nurse, the physician ordered application of Metronidazole 1% daily to lesion. Mr. B also used a dryer sheet in the collar of his shirt to mask the odor. After several days of application, odor was reduced to a tolerable level as defined by the patient.

At each hospice visit, the patient would report a near-constant burning, pulling-type pain at tumor site. His analgesic at that time was morphine sulfate 30 mg four times per day. This did not effectively control pain. He usually rated pain 6–8 on a scale of 0–10. The physician prescribed a titrating dose of gabapentin. After 2 weeks of increasing dosage, patient did report some pain relief, although pain was never rated below 5. He was not completely pain free until he began receiving Dilaudid IV per patient-controlled analgesia pump. As the lesion continued to grow, craters and fissures formed around the nodules. These areas were prone to bleeding, especially with dressing changes. Surgifoam, a coagulant dressing, applied to the bleeding site was effective, but costly. As the bleeding episodes became more frequent and more profuse, several layers of Surgifoam were needed and made the dressings uncomfortable for Mr. B.

Tranexamic acid, a fibrinolytic agent, crushed and made into a paste using NS, was applied to bleeding sites, but had little to no effect. Hemostasis was consistently achieved when Tegagen Rope, a calcium alginate, was applied to bleeding points. The rope contoured easily around the irregular edges of the tumor, which allowed for better contact with the bleeding sites (graphic 4). This dressing was more comfortable for the patient.

After many trial and errors, the most effective wound care for this particular lesion was:

- Metronidazole cream applied to lesion daily for odor control;
- Daily wound care by gently irrigating wound with saline before dressing removal;
- Apply calcium alginate rope to sites prone to bleeding;
- Cover wound with nonadherent dressing followed by absorbent dressing and secured with hypoallergenic tape.
- For profuse bleeding, apply calcium alginate rope to site and apply gentle pressure. May need multiple layers of calcium alginate applied before hemostasis is achieved.

Fungating wounds rarely heal and can be very distressing for patients and caregivers. When providing palliative wound care, the focus should be on what will improve the patient's quality of life. In Mr. B's case, it was controlling the wound odor, controlling bleeding, and pain management. Communication between caregivers, patient, and resource personnel can help facilitate individualizing the plan of care to control patient symptoms and provide the best possible palliative care for the patient.

Pain

Pain control is central in the effective management of patients receiving palliative care and wound care alike. It is the nurse's responsibility to comprehensively assess the pain experience including location, duration, intensity, quality, onset, and impact on daily living so the type of pain can be identified (Price et al., 2007). Pain can be broken down into three main types: cyclic (intermittent with repetitious treatment or movement; acute pain), noncyclic (single incident—e.g., cleansing or debridement, acute pain), and chronic (persistent but can be exacerbated) (Langemo et al., 2009). Recognizing the different types of pain, and understanding that patients can have acute and chronic pain at the same time, can assist the nurse in developing interventions to address specific causes.

Dressing changes are a frequent cause of cyclic pain. Selecting nonadherent dressings that are atraumatic on removal can significantly reduce the pain experience (Meaume et al., 2004). If the best dressing option you have, such as for optimal exudate absorption, does not provide an atraumatic layer, an additional option is to place a nonadherent contact layer down first. Other methods of reducing cyclic pain include positioning off of the painful site/pressure redistribution, topical medications, skin barriers to protect from chemical irritation, and systemic pain medications. In general, less frequent dressing changes are better for the wound as they reduce the cyclic pain experience (Rippon et al., 2012).

Noncyclic pain is often associated with wound debridement. Debridement may be necessary to reduce malodorous necrosis caused by bacteria. To reduce noncyclic pain, premedicating either systemically or topically is essential. All procedures should have a mechanism in place for "time-outs" to allow the patient to take a break if increased and prolonged pain is experienced (Price et al., 2007). Reducing bacteria with antimicrobials can also be effective in reducing pain as infection or increased bacteria can contribute to pain (Price et al., 2007).

Chronic pain can be managed with a combination of the above techniques as well as with systemic and local pain medications. The World Health Organization (WHO) Clinical Ladder for systemic pain medication remains the standard for treating chronic pain especially those with wounds (Price et al., 2007). This stepwise approach starts with nonsteroidal anti-inflammatories and works up to strong opiates. The use of adjunctive pain medications recommended by the WHO, such as tricyclic antidepressants or anticonvulsants, can be beneficial for neuropathic pain (Price et al., 2007). When systemic medications do not reduce pain to an acceptable level, clinicians should consider the use of topical pain medications (Gallagher, 2010). Local anesthetics for procedural or chronic pain such as lidocaine may provide some benefits; however, benzocaine should be avoided (Price et al., 2007). Topical opioids show a clinical benefit in reducing wound pain (Gallagher, 2010). The use of intravenous morphine mixed with a hydrogel and applied topically has been used successfully, although it is an off-label use (Ribeiro et al., 2004; Zeppetella et al., 2003). As with all medications, the provider must weigh the benefits with potential adverse effects (Price et al., 2007).

When removing the dressing, gently lift it toward the flap opening, preventing the skin from lifting up again.

Exudate

Exudate is part of the normal inflammatory process but an increase in the amount and type is impacted by several factors including edema and bacterial load. The general concepts of appropriate dressing selection to manage exudate include: (a) absorbs exudate without drying the wound bed, (b) provides an effective bacterial barrier, (c) is atraumatic upon removal leaving no dressing debris, and (d) allows vapors to escape the dressing to prevent overhydrating of the wound and surrounding tissue (Brett, 2006). Typical dressings to manage exudate include foams, alginates, and hydrofibers (Selby, 2009). Using combinations of these dressings increases the amount of exudate held within the dressings and increases dressing wear time, thereby reducing the other symptoms associated with frequent dressing changes. In extreme cases, pouching a wound with a wound manager or ostomy pouching system may be the

The application of a non-adherent gauze dressing or low adherent dressing such as a silicone dressing or low tack foam dressing will prevent trauma upon removal.

best option. For wounds on the lower extremity related to venous insufficiency, reducing the edema by elevation and light compression will help to significantly reduce the amount of exudate. Management of exudate caused by bacteria will be discussed in the odor section.

Odor

Wound odor usually occurs from bacteria within the wound typically on necrotic tissue. Other types of wound odor should be distinguished from bacterial causes such as a fecal malodor from fistula formation into the bowels. Elimination of odor can be accomplished through a combination of cleansing, debriding, and decreasing bacterial load. Wound cleaning can occur with each dressing change or even in the shower by gently allowing the water to wash over the lesion, particularly in malignant wounds (Seaman, 2006). In some cases, topical antiseptics such as the use of Dakin's solution can be used to cleanse a wound and also for light packing to quickly reduce bacterial loads and associated symptoms (Cornwell et al., 2010; Seaman, 2006). The use of antiseptics should be limited to a short period of time until the desired effect is reached. Gentle debridement through the body's ability to autolytically debride the wound is accomplished by using moisture retentive dressings and it is the preferred method. However, in highly colonized wounds or in infected wounds this is not the best choice and antimicrobials should be started to reduce the risk of systemic infection. In some cases, a wound care specialist may be called to remove loosely adherent necrosis without causing pain to the patient to quickly reduce the amount of dead tissue that promotes bacterial growth.

Reducing bacterial loads can be successfully accomplished by using topical antimicrobials such as silver-impregnated dressings, cadexomer iodine, Dakin's solution, metronidazole, and honey-based dressings (O'Brien, 2012; Seaman, 2006). The type of antimicrobial selected is based on optimizing the wound environment and addresses as many wound symptoms as possible. Silver dressings are a good choice because they typically release silver over several days negating the need for frequent dressing changes. They are also impregnated into most dressing categories so you get the benefit of a foam, alginate, or hydrogel with the added antimicrobial benefits of the silver. Silver dressings cannot be mixed with Dakin's solution or oil-based dressings as it deactivates the silver. Iodine cadexomer dressings are also available in several preparations but they too have contraindications for anyone who cannot be exposed to iodine. Low-strength Dakin's solution has good bacterial coverage and can quickly reduce the amount of bacteria and associated symptoms without harming the patient or wound (Levine, 2013). Unfortunately, the dressing changes for Dakin's solution are usually at least daily to get the maximum effect. After the Dakin's solution has significantly reduced the bacteria and odor, it is recommended to switch to a dressing that can be left in place for several days, such as a silver dressing, which continues to reduce the bacterial load within the wound. Topical metronidazole has been found extremely useful in managing malignant wound odor and remains a common recommendation for treatment (Alexander, 2009; Chrisman, 2010; O'Brien, 2012; Seaman, 2006; Woo & Sibbald, 2010). Nonpharmacologic management of wound odor includes the use of charcoal-based dressings, peppermint oil, aromatherapy products, dryer sheets, and cat litter or baking soda under the bed (Seaman, 2006; Woo & Sibbald, 2010). These methods only cover up the odor and do not stop the production of odor-causing bacteria, so they are best used in conjunction with topical therapy.

Bleeding

The best management of bleeding in a wound is prevention. Ensuring that dressings do not stick to the wound bed will help reduce the incidence of traumatic bleeding (Recka et al., 2012). These dressings include contact layers, dressing with nonadhesive layers, silicone, and most dressings that remain moist and do not dry to the wound bed. Friable wounds that bleed easily because

Protocol M.

The term "fungating" describes a condition of ulceration and proliferation that arises when malignant tumor cells infiltrate and erode the barrier properties of the skin. Initially, they present as multiple nontender nodules that are skin-toned, pink, violet-blue, or black-brown in color, but they go on to develop into papillary lesions (resembling a cauliflower stalk) that may be complicated by an ulcer, sinus tract, or fistula. Complete would healing is not the primary goal in these types of wounds but, instead, is symptom management.

- Rationale of wound symptoms:
  1) As the lesions grow and expand, they tend to disrupt local blood supply resulting in necrosis of the malignant tumor and underlying tissue.
  2) Anaeorobic organisms readily grow and proliferate in this warm moist oxygen-poor environment.
  3) It is the proliferation of these anaerobic organisms that create their characteristic exudate and malodor.
  4) Tumor infiltration of the local lymphatic vessels can also affect interstitial tissue drainage resulting in lymphedema of the affected region.
  5) Tumor activity and invasiveness cause an intense itching sensation and also damage peripheral nerve supply.
- Symptoms most commonly distressing to patient may include:
  1) Pain
  2) Exudate
  3) Bleeding
  4) Odor
- Topical therapy can be used individually or in combination in order to achieve symptom control.
- Topical wound therapy specific to symptom:
  1) Pain
     a. Topical opiods applied to the wound surface can provide immediate local analgesia and work indirectly to diminish the inflammatory process.
     b. Use dressings that are non adherent or soft silicone such as Adaptic, Xeroform, Telfa, X-cell, Elastogel, or Mepilex.
     c. Reduce frequency of dressing changes.
  2) Exudate
     a. Use dressings that are nonadherent but absorptive or layer nonadherent dressings with foams such as optifoam, copa, or versiva.
     b. Use dressings that help maintain a moist wound surface that supports autolytic debridement of necrotic tissue such as calcium alginates, hydrofibers, or Elastogel.

Figure 1. Malignant/fungating wounds.

Source: Data from Bergstrom, K. (2012). Assessment and Management of Fungating Wounds. *J Wound Ostomy Continence Nurs.* 2011;38(1):31-37.

they are heavily colonized with bacteria or are infected. Reducing the bacterial load will reduce the occurrence of bleeding. Malignant wounds are known to bleed frequently because of their vascularization. Medications such as topically applied epinephrine, aminocaproic acid, and sucralfate paste are good at stopping widespread oozing (Harris & Noble, 2009; Mcdonald & Lesage, 2006; Seaman, 2006). For pinpoint bleeding, silver nitrate can be applied to cauterize the area (Seaman, 2006). Hemostatic agents used in surgery, such as gelling hemostatic agents and hemostatic gauze, can also be used at the bedside if available (Merz et al., 2011). Silver calcium alginate can be applied to successfully stop bleeding as well. This dressing should be left in place until it falls off on its own to avoid bleeding upon removal. If modifiable, systemic factors should be addressed such

as the concurrent use of anticoagulants. Nonpharmacologic management of bleeding in cases where it cannot be stopped at the end of life aims at providing an environment that minimizes the impact of bleeding such as using dark sheets and towels to contain large blood loss.

Pruritus

Pruritus or itching can be classified as pruritoceptive (dematologic—e.g., dermatitis, drug reactions, xerosis), neurogenic (systemic disorders—e.g., hepatic failure and renal failure), neuropathic (diabetic neuropathies and postherpetic), psychogenic (mind-related influence), and mix of several types (Paul, 2012). A comprehensive assessment of itching will help the nurse determine etiology and subsequent management. Pruritoceptive itching may be a result of chemical irritants such as prolonged wound exudate exposure on the surrounding skin. Applying a moisture barrier, such as liquid film barrier wipes, creams/ointments, or wafer barriers, will decrease exposure to irritants (Elmariah & Lerner, 2011). These methods also work well for reducing contact dermatitis from tape exposure or incontinence dermatitis. Dermatitis-related itching improves with the use of topical doxepin hydrochloride, diphenhydramine, and steroid creams (Elmariah & Lerner, 2011; Eschler & Klein, 2010). Of the topical antihistamines, doxepin is the only medication shown to significantly improve itching (Eschler & Klein, 2010). Neurogenic itching from systemic factors requires the elimination of the causative factors, which is often difficult to accomplish in the patient receiving palliative care particularly in hepatic and renal failure. In these cases systemic medications such as diphenhydramine or hydroxyzine might be effective (O'Donoghue & Tharp, 2005). These anticholinergic medications should be avoided in the elderly due to the high risk of delirium and cascade iatrogenesis. Neuropathic itching can be managed with adjunctive medications such as tricyclic antidepressants and anticonvulsants discussed in the pain section (Yosipovitch & Samuel, 2008). Topical anesthetics such as EMLA cream (AstraZeneca Pharmaceuticals, LP, Wilmington, DE), lidocaine patches, capsaicin, and menthol may also be beneficial (Elmariah & Lerner, 2011; Yosipovitch & Samuel, 2008). Psychogenic itch may be managed with tricyclic antidepressants, selective serotonin-norepineprhine reuptake inhibitors, selective serotonin reuptake inhibitors, and antipsychotics under close supervision of the provider (Yosipovitch & Samuel, 2008).

Conclusion

Home healthcare nurses will likely provide care to persons with wounds. In many cases, palliative wound care may be indicated in the presence of severe debilitating illness or in face of life-limiting illness. Principles of palliative wound management not only are aimed at improving patient's quality of life but also incorporate general principles of wound care focused on patient goals. To successfully provide palliative wound care, the home healthcare nurse requires knowledge of common wound etiology concepts as well as specific symptom management. This knowledge can easily be applied to existing wound care protocols while concurrently meeting the needs of the palliative wound patient. ⌂

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