

## Management of painful wounds in advanced disease

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*K.C. is an 83-year-old woman with advanced dementia, moderate chronic renal failure, and congestive heart failure who lives in a residential care facility. With progression of her diseases she is no longer mobile and develops sepsis secondary to her dementia. Her family says K.C. would wish treatment in acute care with intravenous antibiotics. The sepsis proves difficult to treat and she requires a lengthy stay in acute care. Owing to multiple comorbidities, poor nutrition, and immobility, K.C. develops a large sacral pressure ulcer with involvement of subcutaneous tissue down to the fascia. She looks uncomfortable and calls out when she is being moved. She resists care and daily dressing changes.*

*Staff members believe K.C. is in pain and initiate treatment with as-needed doses and then regular doses of hydromorphone, titrating up to a 2-mg dose every 4 hours. Although K.C. looks less distressed and is mobile, she is often drowsy and asleep in her chair; her appetite and interactions with others are also greatly affected. The hydromorphone is switched to a 12- $\mu$ g fentanyl patch every 72 hours; however, it is evident that the fentanyl patch does not give sufficient analgesia, as K.C.'s previous behaviour returns. Higher doses of the fentanyl patch cause the same adverse effects as the hydromorphone.*

*K.C.'s sepsis has cleared, and staff members think that it is best for her to be managed by staff who know her; so she is transferred back to residential care.*

Wounds are serious events in patients with advanced illness. Wounds are more common in patients with non-cancer illnesses than in those with cancer. Pressure ulcers are the most common wound class, affecting more than 60% of patients in a prospective study of 664 patients.<sup>1</sup> Pain is the most common symptom reported in wounds (31%), followed by exudation (29%), distress secondary to cosmetic or aesthetic appearance (18%), and odour (10%).<sup>2</sup>

Optimal management is to prevent the occurrence of pressure ulcers, if possible, as they are a source of

distress for individuals, have negative effects on survival in noncancer patients,<sup>3</sup> and involve a substantial amount of staff time and cost. However, owing to multiple comorbidities resulting in prolonged disability and immobility, combined with poor nutrition, wounds develop despite preventive strategies in place.<sup>4</sup>

### Pain management

Controlling pain is an important part of the total plan to minimize the suffering from these complications of advanced disease.<sup>5</sup> Two types of pain can be associated with an open wound: nociceptive pain from the tissue damage creating the wound, and neuropathic pain from damaged peripheral nerves at the site of the wound.

Assessment of pain in wounds requires determining whether the pain is present all the time or only during dressing changes or certain activities. If pain is present all of the time, then continuous analgesia is needed. The character of the pain will help determine whether secondary neuropathic pain is present. A validated assessment scale for wound symptoms might be helpful for capturing and monitoring the other symptoms associated with the wound, including aesthetic distress.<sup>2</sup>

Many patients will have multiple sources of pain, and systemic opioids administered by the oral or parenteral route will provide relief to all the pains. However, if the wound is the only source of pain, systemic administration might result in intolerable side effects in order to get sufficient analgesia.

There are foam dressings with slow-release ibuprofen that have shown significant efficacy with pain relief when compared with a placebo in shallow wounds not affecting the subcutaneous tissue ( $P < .0001$ ).<sup>6</sup> They are effective in shallow ulcers in which the dressing can come in direct contact with the open tissue.

Opioid receptors are present in open tissue and have demonstrated efficacy in moderate to severe pain from open ulcers and fungating tumours. The mechanism of pain relief is by the inhibition of sensory neurons and of pro-inflammatory neuropeptide release.<sup>7</sup>

### Topical opioids

A systematic review of 19 studies on topical opioids in painful wound management shows clinical benefit to topical administration; however, there are not enough high-quality studies yet to recommend the topical route over the systemic route.<sup>8</sup> However, in patients who are



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not getting adequate pain relief or who are experiencing intolerable adverse effects from systemic opioids, a trial of topical opioids should be considered.

Most of the studies to date have used morphine in an amorphous wound gel or methadone in an inert wound powder. Morphine, being hydrophilic, is best in a water-based gel, and methadone, being lipophilic, is best in an inert wound powder. The usual concentration is a 1% concentration of the opioid.<sup>9,10</sup> The use of a powder or gel depends on the condition of the wound and the amount of exudate. Seeking the advice of a wound care nurse is recommended.

The amount of topical opioid used depends on the size of the open wound. The mixture should be applied after the wound has been irrigated and the new dressing is ready to be applied. It is essential to apply enough mixture to cover the whole surface of the open wound to the edges, including any undermined tissue (Figure 1). The following is a typical prescription: 100 mg of morphine in 10 g of amorphous wound gel (1% concentration). Apply 5 g daily to exposed tissue before application of new dressings.

**Figure 1. Methadone powder (100 mg of methadone in 10 g of inert wound powder) being applied to a pressure wound secondary to multiple comorbid illnesses and debility: The powder is shaken over the wound and spread evenly to the edges of the wound. If there is undermining of the wound, the powder can be put in a large syringe and, by using air behind the powder, it can be "blown" onto the tissue underneath the edge of the wound.**



Staff members who know K.C. at the residential care facility believe that she is still in pain, especially during dressing changes. They give her a 25-µg dose of sufentanil in the buccal mucosa 5 minutes before the

**BOTTOM LINE**

- Wounds are common in patients with advanced illness, and pressure ulcers are the most common type of wound. Although prevention is important, wounds are not always preventable in such cases.
- Pain is the most common symptom reported in wounds (30% of cases) and should be properly assessed and treated.
- Although systemic opioids might be the most effective way to manage overall pain, they might cause systemic side effects; if wounds are the primary cause of pain, topical opioids or topical ibuprofen might be effective alternatives.

**POINTS SAILLANTS**

- Les plaies sont fréquentes chez les patients à un stade avancé de la maladie et les plaies de pression sont les plus courantes. Même s'il est important de les prévenir, il n'est pas toujours possible de le faire dans de tels cas.
- La douleur est le symptôme le plus souvent signalé (30% des cas) et il importe de l'évaluer et de la traiter adéquatement.
- Les opioïdes systémiques sont peut-être le moyen le plus efficace de contrôler la douleur en général, mais ils peuvent causer des effets secondaires systémiques; si les plaies sont la cause principale de la douleur, les opioïdes ou l'ibuprofène sous forme topique peuvent être une solution de rechange efficace.

dressing change<sup>11</sup> and also warm the saline to body temperature before using it to irrigate the wound. Morphine gel is applied generously to the entire surface of the open wound just before applying the fresh dressing.

The next day, staff members are able to raise the head of K.C.'s bed, and she is able to eat some breakfast. She does not appear drowsy and is able to get up in a chair. Staff members note that she is less distressed when they adjust her position and that she seems more comfortable during dressing changes.

Several days after the first application of the topical morphine, K.C. develops drowsiness again and begins to sleep for most of the day.

There are several possible reasons for the drowsiness after several days of the topical opioid. One reason could be substantial absorption of the opioid via the open tissue, but this is unlikely. Another reason could be that as the pain is now well controlled by the topical opioid, the systemic opioid is excessive, resulting in the patient becoming drowsy. Third, other medications such as neuroleptics, used to control the agitation secondary to the pain, are no longer required and are now causing adverse effects. Reducing the

systemic opioid and other sedating neuroleptics that are no longer necessary would be the best clinical choice.

*The fentanyl patch is changed back to an equivalent dose of hydromorphone, which is titrated down and subsequently discontinued. K.C. is less agitated in general, and eventually the dose of quetiapine in the late afternoon and at bedtime is reduced as well. A pressure-relieving mattress and frequent changes in position help to prevent the wound from growing in size. As her dressing controls the exudate, the frequency of a dressing change is reduced to every 2 days to minimize K.C.'s discomfort and distress.* ❁

Pain from fungating tumours can be treated in the same manner, using topical opioids applied directly to the tumour. If the tumour or wound has an odour, topical metronidazole can be applied after the opioid has been applied directly on the tissue.<sup>12</sup>

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#### Competing interests

None declared

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