

Patients in Palliative Care with Pressure Ulcers Require Vigilant Pain Management

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Abstract

According to findings from studies of patients with pressure ulcers (PU), PU pain is significant. Health care professional (HCP) awareness of PU pain has been growing over the last 15 years but still lacks enough attention at all levels from basic education to advanced clinical practice across disciplines. Pressure ulcers must be appropriately diagnosed as a pressure ulcer and then graded for severity into a stage/category of severity and for pain acuity and chronicity. The purposes of this article are (1) to present validated and reliable tools for measurement of pressure ulcer pain (PU), identify causative factors of PU pain and strategies to alleviate PU pain (2) to provide information that can be incorporated into a framework for health care professionals to use in development of policies and procedures for care of patients with pressure ulcers.

Keywords: Pressure ulcers; Pain; Analgesia

Introduction

The purposes of this article are (1) to present validated and reliable tools for measurement of pressure ulcer pain (PU), identify causative factors of PU pain and strategies to alleviate PU pain (2) to provide information that can be incorporated into a framework for health care professionals to use in development of policies and procedures.

Patients in need of palliative care often have or are at risk for pressure ulcers (PU). Highest priority for palliative care of patients with PU is to assess the pain, discover causative factors and strategies for prevention and relief. According to findings from studies of patients with pressure ulcers, PU pain is significant and may be the most distressing symptom that the individual reports [1-4]. Health care professional (HCP) awareness of PU pain has been growing over the last 15 years but knowledge of pain management is lacking in clinical practice across disciplines [5]. Management of pain requires highly skilled, individualized, compassionate and patient care. Pressure ulcers must be appropriately diagnosed as pressure ulcer and then for stage/category of severity and for pain acuity and chronicity. Acute pain (less than 30-60 days), subacute pain including hyperalgesia and allodynia, affecting the nociceptive system or chronic, neuropathic also called persistent pain effecting the peripheral and central nervous system or a mixture of all affect people with pressure ulcers. Neuropathic pain is the consequence of intrinsic or extrinsic nervous system damage. Examples are diabetic neuropathy and peripheral sensory neuropathy. Patients with a pressure ulcer experience all of these types of pain [2-4]. Results from a study of 47 adults with PU found constant pain affliction for 44 out of 47 (94.6%) patients and that the degree of pain intensity and constancy of occurrence is associated with the increasing stage/category of pressure ulcer. Fifty two percent of patients with stage/category II PU report intermittent pain. Fifty six percent of patients with stage/category III and 67% of stage/category IV report constant pain [3]. Patients with pressure ulcer tissue damage severity (stage / category III or IV) experience persistent pain of great extent at rest [6]. Patients with pressure ulcers with all categories of tissue loss report that they experience the greatest degree of pain at times at dressing changes (acute cyclic pain), debridement procedures or movement (e.g. repositioning or transfers) (acute noncyclic pain) [7]. Undoubtedly patients with stage/category I, unstageable and deep tissue injury pressure ulcers experience pain but research information about pain for these classifications of PU is lacking. To learn more about PU classification check the website of the National Pressure Ulcer Advisory Panel (www.npuap.org).

Assessment is the first step in the process of developing a care plan and is part of the evaluative process. Once all the data is assessed the next step is to evaluate the findings and then prepare the plan for pain prevention, alleviation and patient centered management.

PU pain assessment

All patients with pressure ulcers should be assessed for pressure ulcer pain [8]. PU pain has been documented as present in most patients [2-4]. Pain related to pressure ulcers can arise from pressure, friction, and/or shear; damaged nerve endings; inflammation; infection; procedures/treatments; or excoriation from incontinence and muscle spasm [9-11]. Pressure ulcer pain can occur at rest, when no procedures are being performed [12-16]. Pain assessments using appropriate instruments should be performed and documented on a regular basis when the dressing is intact and no procedures are in progress as well as prior to and during wound procedures, such as dressing changes, repositioning or debridement.

The most reliable indicator of pain is the individual's self-report of pain. However, the elderly, do not always report pain in response to a simple enquiry, so HCP and caregivers may need to provide several and varied opportunities for them to express it [17]. Systematic ongoing assessment of pain provides direction for the pain-treatment plan, with modifications based on the response of the individual [18-20]. Pressure ulcer pain assessment should include comprehensive objective and subjective assessments encompassing the following four elements: (1) a detailed patient history, including the character, intensity and duration of the pressure ulcer pain and other pain; (2) a physical examination, including a neurological component; (3) a psychosocial assessment; and (4) an appropriate diagnostic work-up to determine the type and cause of the pain [21]. Patients who are receiving palliative care can

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have pain from other co-morbidities. Therefore, the source of pain needs to be determined.

Before choosing an assessment tool begin by assessing the patients cognitive status. For cognitively impaired or very young patients targeted questions rather than a validated instrument such as described may help determine where, when and how it hurts. Examples are: Can you point to where it hurts? Does it hurt right now? Does it hurt all the time? When does it hurt? A picture of the body may be used to direct questions and answers.

Help the patient select a pain scale that he/she feels describes their pain best. Be sure to include one with figures or terms in their language. Patients may be accustomed to a VAS but may be confused about what the numbers on the scale mean functionally. A means of conferring clarity is to explain the significance of the numbers by range by explaining the subtle differences: Pain at a 1-3 level (you are aware of pain awareness but not moved to act) a pain between a 4-5 (you notice pain at rest or during activity, this may be a warning of worse pain to come and you are ready to take action), 6-7 pain ("you may be gritting your teeth to carry out activities") and 8-10 level pain (pain makes you stop an activity or not be able to start it at all). According to research, patients with stage/category III and IV are often at the 8-10 level [2].

Pain assessment instruments

Short form McGill pain assessment questionnaire: Pain assessment instruments used in studies of patients with pressure ulcers to determine intensity and type of pain include the McGill Pain Assessment Questionnaire (MPQ) with highest level of accuracy even with cognitively impaired individuals the McGill Pain Questionnaire (MPQ), consists of 4 psychological domains (sensory, effective, evaluative and miscellaneous) to determine that pressure ulcer (PU) pain The MPQ uses words to describe (e.g. sharp, throbbing, tingling etc.) to measure patients subjective pain experience [3]. Summarization of MPQ scores provides Pain Rating Index (PRI). Scores increase as ulcer duration increases along with reports of more pain intensity at dressing changes than at rest. Pain intensity was statistically significant for longer ulcer duration ($p < 0.05$). There was no significant increase in pain when a greater number of ulcers were present or more dressing changes ($p \geq 0.05$) [3].

Pain scales: The revised Faces Pain Scale is classified as reliable by some studies but there are questions about the ability of cognitively impaired people to associate the picture with their personal experience of pain. Visual Analog Scale (VAS) or Numeric Scales (VNS) have reasonable levels of accuracy across groups. Gunes [3] found the Revised Faces Pain Scale to be valid and reliable for pressure ulcer pain however others report that this scale does not work as well for adult patients who are cognitively impaired as the MPQ. There are also reliability issues with the VAS in this population [22].

FLACC tool: Babies and children also acquire pressure ulcers and have pain and require palliative care. Pain assessment score for of this age group is very challenging and somewhat subjective. The FLACC (Face, Leg activity, Cry and Consolability) tool has been validated and found reliable in assessing postsurgical pain in a study of 89 children 2 months to 7 years of ages and in 125 children 6-42 months years of age undergoing emergency room procedures indicating that FLACC measures a composite of pain and distress in young children [23,24].

Neuropathic pain assessment: A quick neurological examination can be performed to test for diminished sensory responses along with instruments like the MPQ that ask the patient to use terms to describe the pain. Answers like tingling, burning, throbbing identified on the MPQ would suggest neuropathic pain and further follow up testing.

Evaluating the causes of pain

Dressing changes: Patients report that the most increase in acute pain occurs during dressing changes, cyclic acute wound pain caused by stimulation of the nociceptive nerves. Dressing technology manufacturers have addressed this issue by bringing to market special dressings and tape that can be placed on the wound. Health care providers need to become familiar with these products as they are pain sparing such as those that allow for less dressing changes. Product examples are hydrocolloids, hydrogels, alginates, polymeric membrane foams, foam, soft silicone dressings, and ibuprofen-impregnated dressings (not currently available in the U.S.) [25-34]. These dressing types are designed to keep a wound moist which protects the nerve endings from stimulation and allows epidermal cells to migrate from the edges which further protects the nerve endings which is analgesic.

Specialized dressings: The main concept is to modulate the environment of wounds in order to reduce healing time and pain. PU are bathed in their own wound fluid that increases in volume in response to inflammatory process and infection. Chronic wound fluid can contribute to pain because it contains chemical irritants (e.g. high levels of matrix metalloproteinases (MMP), proinflammatory cytokines, and histamine). Wound dressings are available that incorporate protease inhibitors or other substances targeted at specific proteases [35,36]. In a RCT of 80 pressure ulcer patients a protease-modulating matrix (Promogran® Johnson & Johnson, New Brunswick, NJ) was used in the treatment of PU. The treated group showed a quicker mean healing time and a greater frequency of complete healing with no significant adverse effects [37]. In a RCT of 40 venous ulcer patients the mean visual analogue pain score before Promogran treatment was 8.72 (group A) and 7.88 (control group B) (ns, $P > 0.05$). After 1 week of treatment, the score dropped to 5.76 (group A) and by the second week it had dropped to mean pain score of 3.84 compared with the pain score before treatment ($P < 0.05$) [38]. Superabsorbent polymer-containing wound dressings have a beneficial effect on wound healing by reducing MMP concentration and inhibiting microbial growth [39]. In a RCT of 24 patients a foam dressing product impregnated with ibuprofen designed to provide continuous low-dose release was found to give reduction of venous ulcer pain [40,41]. However, this class of products is not approved by the USA federal drug administration so is not available for purchase. Dressing products appear to provide valuable relief of pain for venous ulcers now additional research is needed specific to PU pain.

PU wound infection: All stage/category II- IV PU is colonized with microorganisms but are not necessarily infected. However when the host patient is medically compromised the body may not have resistance to the toxicity of the bacterial toxins. One way to identify infection from colonization is to check for systemic effects and also increased report of PU pain [42]. Oral antibiotics may be better than topical agents for treating invasive tissue infection due to improved penetration into the wound tissues via the blood stream. However there are wound dressings that control local bacterial toxins. Dressing scientists have also developed antiseptic containing dressings that release antiseptic agents at the PU base. One such product is cadexomer iodine that is effective in reducing bacterial counts in chronic wounds that has positive effects on wound healing [43]. However randomized controlled trials comparing bacterial killing using cadexomer iodine and silver found the silver dressings to be more effective [44,45]. Another product class used for bactericidal benefits is honey impregnated dressings. Cochrane reviewers found insufficient evidence to guide clinical practitioners use of honey in infected PU and said HCP should

refrain from providing honey dressings for routine use in infected PU until sufficient evidence of effect is available [46].

Repositioning: People who are in pain do not like to be moved, however, even small degree of repositioning is helpful in decreasing pain. Repositioning encourages more blood flow to the tissues. Ischemia from pressure may be another cause of pain. Care needs to be administered to prevent or minimize pain during transfers and bathing such as use of lift sheets not draw sheets to avoid friction and shear that can initiate skin trauma [47]. Enlist the patient to help guide the movement to keep pain at minimum. Pillows work well. Avoid position the patient on the pressure ulcer as much as possible.

Biophysical agents: Two biophysical agents with long association with pain and wounds are heat and cold. Heat is soothing and induces relaxation and vasodilation, however, the increased blood flow brings chemical mediators like histamine and prostoglandins that induce pain. Therefore, limit heat to no more than 10 minutes [47]. Patients report comfort from gentle wound cleansing with warm fluid like normal saline and it helps remove the toxic exudate. Cold fluid is shocking both to the patient and the cells slowing cell mitosis. Cold (cryotherapy) may be used indirectly to reduce pain sensation and edema due to reducing capillary permeability that blocks release of substance like histamine etc. Do not apply directly to the wound so as not to cause hypoxia but on the adjacent tissue above the wound. Ten to 15 minute application of a cold pack can control pain for 1 or more hours [48]. Transcutaneous electrical stimulation (TENS) is recommended to relieve wound pain and reduce need for pain reducing medications but it cannot replace them [8,21]. Noncontact low frequency ultrasound has been reported in a retrospective study to relieve venous ulcer pain [49]. Pain relief specifically for pressure ulcers has not been studied using biophysical agents.

Pharmaceutical analgesic products: To maintain analgesic effects, administer drugs "by the clock" every 3-6 hours by the least invasive route [5]. Additional dosing may be required at least 30- 60 minutes before sharp debridement is to be performed. Consult the World Health Organization dosing pain ladder that is designed to minimize side effects while maximizing pain relief [50]. Topical anesthetics include medications that act on opioid receptors in peripheral nerves that become activated during inflammation. Such medications include morphine or diamorphine gels [51-54], eutectic mixture of lidocaine and prilocaine used on the periwound area (EMLA, AstraZeneca, Alderley Park, UK) [55-58], or foam dressings containing ibuprofen (Biatain-ibu, Coloplast, Petersborough, UK) [59]. Availability of these preparations may vary from country to country.

Discussion

For a long time HCP did not think about the pain element of PU. In 1995, a nurse Diane Krasner, wrote a paper that woke up the wound care world to the issue of pain for all wound patients [60]. Her model focused on time related chronic wound care pain experience, noncyclic acute wound pain, cyclic acute wound pain and chronic wound pain as opposed to the physiologic, psychosocial and behavioral aspects of the pain experience. The increased awareness had profound effects. People began to talk about the problem at conferences and wrote articles about it [5,61,62]. In the meantime, the Joint Commission for Accreditation of Health Care Organization (www.JCAHO.org) in the United States set standards for effective, appropriate assessment of pain and aggressive, effective pain management with regular reassessment of pain in health facilities [63]. Wound care product developers began studying the problem that has lead to development of the products noted above. Pain management requires highly individualized, skilled, care delivered

with compassion, caring and commitment. Clinicians need guidelines to aide in development of quality policies and procedures that will provide palliative care. HCP can expect new updated pressure ulcer guidelines including palliative care from the National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel in 2014.

Conclusion

Identifying patients with PU pain and the causes of the pain should motivate HCP to incorporate such findings into policies and procedures that will improve the quality of life for patients in palliative care who have pressure ulcers. Use of pharmaceutical analgesic products for pain management was deliberately left until the end of the section about evaluating causes and responses to pain. Before heading to the pharmacy to get pain medication, it is suggested that the HCP consider some of these other strategies for pain alleviation and drug sparing. Palliative care requires a multidisciplinary team to develop policies and procedures to achieve pain relieve for the patient with pressure ulcers.

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