

Managing Pain From Advanced Cancer in the Palliative Care Setting

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Managing complex pain at the end of life is an essential aspect of palliative care. Such care is best guided by a comprehensive evaluation of the physiologic sources of pain to determine appropriate analgesia. Using the case of Mrs. J, a woman with advanced ovarian cancer, key principles of complex pain management at the end of life are reviewed, including optimum use of opioids and co-analgesics. In addition to physical assessment, total care of the patient and family facing imminent death should be based on an assessment of psychological, social, and spiritual factors. The assessment and management of pain and suffering are guided by an interdisciplinary team focused on goals of comfort and facilitating a death that respects the life of the patient who is dying.

Mrs. J is a 58-year-old woman with advanced ovarian cancer and a history of previous bowel obstructions resulting from metastatic disease. Following diagnosis three years ago, she underwent surgical debulking followed by several courses of chemotherapy. The patient's course included multiple hospital admissions for pain and nausea related to recurrent bowel obstruction. During several of Mrs. J's previous admissions, the medical staff feared she would not survive, yet she did saying, "The good Lord and the hope of another month with my grandchildren pulls me through."

Mrs. J is admitted to the hospital eight weeks after her last hospitalization with increased abdominal pain (rated as 10 of 10), nausea, and vomiting. She has been under the care of home hospice and now is admitted to the inpatient palliative care unit because her symptoms became unmanageable. Her husband requested that she be admitted as he was exhausted. At the time of admission, Mrs. J said, "I believe this time the good Lord is calling me home."

At the time of admission, the hospital social worker communicated with the hospice social worker who worked closely with the patient's family over the past two months. Based on that communication, the social worker arranged for a chaplaincy visit. The chaplain held a prayer session that evening for the family, citing Mrs. J's favorite scriptures. Mrs. J was able to add her own prayers, voicing thanks to her family and her wishes for the future of her grandchildren.

Prior to admission, Mrs. J was receiving morphine via a subcutaneous infusion at 20 mg per hour, with bolus doses of 10 mg ordered every 15 minutes as needed, administered via patient-controlled analgesia. Over the past 24 hours, she had initiated 20 bolus doses. On admission, she was found to have a partial small bowel obstruction, but she requested that a nasogastric tube not be inserted because it had been painful during past admissions and she did not want to frighten her grandchildren. An IV line was started and octreotide was infused at 20 mcg per hour and titrated upward to reduce intestinal secretions. Haloperidol 1 mg IV every six hours was

At a Glance

- ◆ Complex pain management at the end of life includes optimum use of opioids and co-analgesics.
- ◆ Assessment of patients and families facing imminent death should be focused on physical, psychological, social, and spiritual well-being.
- ◆ An interdisciplinary approach to pain management for patients with advanced cancer should center on the goals of comfort as well as the facilitation of dignity and respect at the end of life.

initiated for nausea, and dexamethasone 4 mg IV each day was given to reduce visceral inflammation and provide additional antiemetic effects. Over the next 24 hours, Mrs. J's morphine was increased to a rate of 30 mg per hour with 30 mg bolus every 15 minutes as needed. Once her pain, nausea, and vomiting were controlled, Mrs. J's daughter, son-in-law, and two young grandchildren came to say good-bye. She also was able to talk by phone to her son who lived

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across the country. Based on communication with the social worker, the physician's initial orders and note included a clear directive that the goal of Mrs. J's care was optimum comfort and peaceful death. Twenty-four hours later, Mrs. J died peacefully with her spouse, daughter, and chaplain at her bedside.

In this article regarding complicated pain in advanced cancer, suggestions for initial assessment of a pain crisis are presented, including the critical step of determining the etiology of pain. The medical evaluation of the pain etiology is combined with comprehensive nursing assessment. Comprehensive care for such patients begins with careful selection of opioid and adjuvant analgesics; guidelines for the selection of those agents are presented. Care also includes psychological, social, and spiritual well-being, and key elements of the assessment are presented with suggestions for intervention (Chochinov, Hack, McClement, Kristjanson, & Harlos, 2002; Covinsky et al., 1994; Daaleman & VandeCreek, 2000; Lo et al., 2002; Rando, 2000). An organized approach involving an interdisciplinary team can attend to a patient in a pain crisis while also caring for other dimensions of patient and family quality of life (American Academy of Hospice and Palliative Medicine, 2004; Berry & Griffie, 2001; Cassidy & Davies, 1998; Doyle, Hanks, & MacDonald, 1998; Ferrell & Coyle, 2006; Furst & Doyle, 1998; Panke & Ferrell, 1998; Taylor, 2003).

Initial Approach to a Pain Crisis

When a patient is in a pain crisis, the most likely sources of the pain as well as prior responses to pain management interventions must be rapidly and thoroughly assessed (see Figure 1). After the assessment, an interdisciplinary care plan can be initiated to optimize comfort and function. The goal of the care plan is to find the simplest and most effective analgesic and co-analgesic treatment regimen to maximize the patient's quality of life (see Table 1). Co-analgesic or adjuvant drugs are nonopioid medications that enhance the analgesia provided by opioids through mechanisms aimed at the source or transmission of the pain, resulting in better pain control and/or fewer side effects than treatment with opioids alone (see Figure 2 and Table 2).

In the case of patients such as Mrs. J, for whom death is imminent, priority must be given to controlling the physical pain; however, psychosocial needs cannot be neglected. Optimal comfort and function can be achieved only if psychosocial and spiritual pain are assessed and managed concomitantly with physical pain (Chochinov et al., 2002; Daaleman & VandeCreek, 2000).

Etiology of Pain in Advanced Cancer

Even in the face of advanced, progressive cancer, multiple sources of pain can be modified by specific local and systemic therapy (Levy & Samuel, 2005; Miaskowski et al., 2005). For example, advanced cancer can invade or compress healthy tissues, causing tissue destruction, reactive inflammation, or distention of an encapsulated organ or hollow viscous. Infection resulting from advanced cancer or local procedures may be another

1. Assess the pain (persistent and breakthrough).
 - a. Pain intensity
 - 1) Use a standardized scale (e.g., numeric or visual analog scale, Wisconsin Brief Pain Inventory) to assess pain relief and pain impact on 0–10 scale.
 - 2) Response to prior analgesia
 - b. Pain quality
 - 1) Location
 - 2) Description (sharp, dull, stabbing, aching, burning, stinging, pins and needles)
 - 3) Onset and temporal pattern
 - 4) Aggravating and relieving factors
 - 5) Impact of pain
2. Assess the cancer.
 - a. Disease location
 - 1) Location of primary and metastatic lesions
 - 2) Response to prior anticancer therapy
 - 3) Cancer-related organ damage
 - b. Benefit or burden of further anticancer therapy
 - 1) Local: palliative surgery or radiation therapy
 - 2) Systemic: hormones, chemotherapy, targeted therapy, immunotherapy
 - c. Prognosis
 - 1) Final hours
 - 2) Hours to days
 - 3) Days to weeks
 - 4) Weeks to months
 - d. Goals of cancer care
3. Assess concurrent medical conditions.
 - a. Constraints on further anticancer therapy
 - b. Constraints on analgesic and co-analgesic therapy
 - c. Prior or new sources of pain
4. Assess psychosocial status.
 - a. Preexisting psychopathology
 - b. Adjustment to cancer
 - c. Adjustment to pain
 - d. History of substance abuse
 - e. Effectiveness of support system

Figure 1. Assessment of Patients With Advanced Cancer

Note. Based on information from Doyle et al., 1998; Ferrell & Coyle, 2006; Levy & Samuel, 2005; Miaskowski et al., 2005.

treatable source of pain, as are complications of prior cancer treatment. Clues to somatic (musculoskeletal, soft tissue) and visceral (hollow or encapsulated organs) sources of pain come from the patient's report of the qualities of the pain, the response of the pain to prior interventions, and the exact location and extent of the patient's cancer. Tumors also can compress or invade nerves, causing neuropathic pain that typically follows known dermatomes and is described as burning, cold, hot, electric, or numbing. Physical examination can confirm those clues or identify other sources of pain that might be alleviated by source-modifying and/or transmission-modulating co-analgesic therapy (Doyle et al., 1998; Ferrell & Coyle, 2006; Levy & Samuel; Lussier, Huskey, & Portenoy, 2004; Miaskowski et al.) such as anti-inflammatory drugs, antidepressants, and anticonvulsants, or transmission-blocking, invasive procedures, such as a celiac

plexus block, cordotomy, or intrathecal infusions of opioids and local anesthetics (Doyle et al.; Kim, 2005).

Assessment of Physiologic Pain

When assessing cancer pain intensity, a standard measurement tool should be used to determine the severity of the patient's pain and its response to current therapy, such as a 0–10 numeric or visual analog scale or the Wisconsin Brief Pain Inventory (Levy & Samuel, 2005; Miaskowski et al., 2005). Based on the results of the assessment, opioid analgesic therapy aimed at reducing central perception of the patient's pain should be provided while searching for and treating the sources of the pain.

Source-modifying therapy may include systemic or local anticancer therapy, anti-inflammatory drugs, antibiotics, and palliative surgery. Analgesic therapy is complicated by side effects such as constipation, nausea, and sedation that may be related to cancer, opioids, or other medications. Assessment of the patient's concurrent medical conditions and psychosocial status can guide the interdisciplinary treatment plan with specific pharmacologic therapies and psychosocial interventions for these conditions. For example, the anticholinergic effects of tricyclic antidepressants might not be safe for a patient with hypertension or cardiac arrhythmias. Alternatively, psychologic depression reported by the patient as "pain" will not respond to standard analgesic therapy.

Key elements of Mrs. J's assessment included the multiple small bowel obstructions related to metastatic disease. Her disease had progressed through prior anticancer therapies and the articulated goal was to optimize her quality rather than quantity of life. Physical examination revealed frequent, high-pitched bowel sounds on auscultation, suggesting partial bowel obstruction. In the case of partial small bowel obstruction, the use of nasogastric tubes to decompress the upper

Table 1. Four Basic Approaches to Pain Relief

APPROACH	TARGET
Modify the source(s) of pain(s).	Tumor invasion into bone or nerves, tumor distention of hollow or encapsulated organs, fractures, infections, inflammation, noncancer pain (arthritis, degenerative spine disease, etc.)
Alter the central perception of pain.	Pain center in brain stem, brain cortex involved in pain interpretation, brain cortex involved in psychosocial distress
Modulate transmission of pain to the central nervous system.	Afferent neurons, spinal synapse, ascending spinothalamic tract, descending pain-modulating tracts
Block transmission of pain to the central nervous system.	Nerve plexuses, dorsal root ganglion, spinal synapse of afferent neurons, ascending spinothalamic tract, descending pain-modulating tracts

Note. Based on information from Doyle et al., 1998; Ferrell & Coyle, 2006; Levy & Samuel, 2005; Miaskowski et al., 2005.

- Select the appropriate analgesic drug.
 - Use one opioid at a time to facilitate sequential trials.
- Prescribe the appropriate dose of analgesic drug.
 - Opioid-naïve: morphine equivalent of 5 mg by mouth or 1–2 mg IV
 - Prior opioid: For moderate pain, add 25%–50%; for severe pain, add 50%–100%.
- Administer the analgesic drug by the appropriate route.
 - For chronic pain, try oral or transdermal first.
 - For acute pain or pain crisis, use an IV or subcutaneous route if no IV access.
- Schedule the appropriate analgesic drug dosing interval.
 - Oral immediate-release: every 4 hours
 - Oral controlled-release: every 8–12 hours
 - Oral extended-release: every 12–24 hours
 - Transdermal: every 48–72 hours
 - IV bolus: every hour
- Prevent persistent pain and relieve breakthrough pain.
 - Around-the-clock administration of the appropriate analgesic drug, at the appropriate dose, by the appropriate route and interval to relieve the persistent pain throughout the dosing interval.
 - As-needed supplemental doses of the same analgesic drug, if feasible, to relieve episodes of breakthrough pain, incident pain, or pain from progressive disease
 - Oral supplements: Immediate-release, supplemental opioids are offered every two to four hours at a dose that is equal to one-sixth of the total 24-hour dose of the modified-release opioid prescribed for prevention of the patient's persistent pain.
 - IV supplements: As-needed bolus opioids are available every 15 minutes at a dose that is 25%–50% of the continuous infusion hourly dose.
- Titrate the dose of the analgesic drug aggressively.
 - For moderate pain, increase by 25%–50%.
 - For severe pain, increase by 50%–100%.
 - For acute pain, increase every one to two hours until pain is relieved by 50%.
 - For chronic pain, increase every 24 hours for opioids with a half-life equaling four hours.
- Prevent, anticipate, and manage side effects of the analgesic drug.
 - Constipation
 - Nausea
 - Sedation, confusion, and delirium
 - Myoclonus
- Consider sequential trials of opioid analgesics if side effects persist.
 - True allergy to morphine: methadone or fentanyl
 - Hyperalgesia, myoclonus: methadone at N-methyl-D-aspartate-reduced dose
- Use the appropriate co-analgesic drugs to optimize comfort and function.
 - Prostaglandin-related inflammation: nonsteroidal anti-inflammatory drugs
 - Edema, swelling, mass effect inflammation: corticosteroids
 - Neuropathic pain: tricyclic antidepressants, anticonvulsants
- Consider palliative sedation for the relief of refractory symptoms in the imminently dying.
 - Intermittent: benzodiazepines, neuroleptics, barbiturates
 - Continuous infusion: thiopental, midazolam, propofol

Figure 2. Pharmacologic Management of Pain in Advanced Cancer

Note. Based on Doyle et al., 1998; Ferrell & Coyle, 2006; Levy & Samuel, 2005; Miaskowski et al., 2005.

Table 2. Co-Analgesic Therapy for Common Cancer Pain Syndromes

CANCER PAIN SYNDROME	CO-ANALGESIC THERAPY
Bone metastases, soft tissue infiltration, arthritis, serositis, and other inflammatory pain	<p>Oral nonsteroidal anti-inflammatory drugs (NSAIDs)</p> <ul style="list-style-type: none"> • Choline magnesium trisalicylate 1,500 mg PO BID • Ibuprofen 800 mg PO TID • Naproxen 500 mg PO TID
Postoperative pain (plus arthritis, serositis, and other inflammatory pain syndromes in patients who cannot use oral NSAIDs)	<p>Parenteral or enteral NSAIDs</p> <ul style="list-style-type: none"> • Ketorolac 15–30 mg IV every six hours (< 5 days) • Indomethacin 50 mg PR every six to eight hours
Acute nerve compression, visceral distention, increased intracranial pressure, soft tissue infiltration	<p>Corticosteroids</p> <ul style="list-style-type: none"> • Dexamethasone 4–8 mg PO BID–TID • Methylprednisolone 16–32 mg PO BID–TID
Acute spinal cord compression, severe increased intracranial pressure	<p>Corticosteroids</p> <ul style="list-style-type: none"> • Dexamethasone 10–20 mg IV every six hours • Methylprednisolone 40–80 mg IV every six hours
Neuropathic pain	<p>Tricyclic antidepressants^a</p> <ul style="list-style-type: none"> • Nortriptyline 100–150 mg PO at bedtime • Desipramine 100–300 mg PO at bedtime <p>Anticonvulsants^{b,c}</p> <ul style="list-style-type: none"> • Gabapentin 300–900 mg PO TID–QID • Carbamazepine 200 mg PO BID–QID • Clonazepam 0.25–0.5 mg PO TID <p>Antispasticity drug</p> <ul style="list-style-type: none"> • Baclofen 5–30 mg PO BID–TID <p>Local anesthetic</p> <ul style="list-style-type: none"> • Topical lidocaine one to three patches every day, 12 hours on and 12 hours off
Bone pain from metastases	<p>Pamidronate 90 mg IV every three to four weeks</p> <p>Zoledronic acid 4 mg IV every four to six weeks</p> <p>Calcitonin 200 IU IV or intranasal BID</p>
Bowel spasm from obstruction	<p>Scopolamine 0.4 mg IV or SC every four hours</p> <p>Octreotide 50–100 mcg SQ BID–TID</p>

^a Starting dose of nortriptyline and desipramine should be 25 mg PO at bedtime (10 mg if frail or older) and increased by one tablet every three to seven days to target dose as tolerated. Serum drug levels should be checked at target dose or at maximum tolerated dose to assess patient adherence and prevent unexpected toxicity. Onset of pain relief should be expected at one to two weeks and mood elevation with four to six weeks of maximum tolerated or target dose.

^b Serum drug levels should be followed with carbamazepine to assess compliance and prevent unexpected toxicity. The multiple drug-drug interactions noted require review of all medications before initiation.

^c Possible severe bone marrow suppression requires blood counts to be followed closely.

Note. Based on information from Cherny et al., 2001; Doyle et al., 1998; Ferrell & Coyle, 2006; Levy & Samuel, 2005; Lussier et al., 2004; Miaskowski et al., 2005.

gastrointestinal tract can sometimes be avoided, particularly when patients find it offensive. Pharmacologic approaches, including the somatostatin analog octreotide, can reduce gastrointestinal secretions; dexamethasone can reduce inflammation, and antiemetics can afford comfort. When those approaches are applied aggressively, yet vomiting persists, decompression with a nasogastric or venting gastrostomy may be considered.

Management of Physical Pain

Opioid analgesia using single-agent opioids such as morphine, oxycodone, hydromorphone, and fentanyl is the mainstay of relieving a pain crisis in patients with advanced cancer. Optimal opioid analgesia requires that each patient be given the right drug, at the right dose, by the right route, at the right interval on an around-the-clock basis to control persistent pain (Miaskowski et al., 2005). Proportional, supplemental doses of opioids should be available for breakthrough pain (i.e., episodes of pain occurring between doses of analgesics often caused by activity or other stimulus). Immediate-release, supplemental oral opioids are offered every two to four hours at a dose that is equal to one-sixth of the total 24-hour dose of the controlled-release opioid prescribed for control of the patient's persistent pain. Patients usually experience pain relief if their as-needed IV bolus opioids are available every 15 minutes at a dose that is 50%–100% of their continuous infusion hourly dose (Miaskowski et al.).

Side effects such as constipation, nausea, and sedation should be anticipated, prevented, and managed to optimize comfort and function (Cherny et al., 2001). Side effects often can be relieved by switching to another opioid, for example, from morphine to methadone (Levy & Samuel, 2005; Miaskowski et al., 2005). The addition of co-analgesics directed at the source of the pain or the transmission of pain, or at reducing the side effects of the opioids can improve the patient's comfort and function (Levy & Samuel; Lussier et al., 2004; Miaskowski et al.). Finally, regional pain can be treated with regional or neuraxial invasive procedures that can sometimes reduce systemic opioid requirements, thereby improving pain control and quality of life (Kim, 2005). In the case study, if Mrs. J's pain had not been relieved promptly with an IV opioid, the team would have wanted a pain consultation to consider other options. Aggressive consideration of all options is warranted to ensure that patients do not die in pain when first-line approaches fail to provide relief.

Treatment with only one opioid at a time generally is recommended, with a switch to an alternative agent should intractable nausea, sedation, delirium, or myoclonus develop with the initial opioid (Levy & Samuel, 2005; Miaskowski et al., 2005). When rotating opioids, equianalgesic tables should be consulted to adjust for the different potency of each opioid and for the greater bioavailability of the parenteral route of opioid administration compared with the oral route (see Table 3). Switching to methadone should be considered only by experienced clinicians supported by a skilled interdisciplinary team because of its complex equianalgesic dosing and prolonged elimination half-life (Davis & Walsh, 2001; De Conno et al., 1996; Levy & Samuel; Miaskowski et al.).

Alert and conscious patients experiencing a pain crisis, particularly in the face of nausea and vomiting, are best treated with IV opioids administered through a patient-controlled analgesia pump (Levy & Samuel, 2005; Miaskowski et al., 2005). No preset maximal dose of single-agent opioids has been recommended. The correct dose is the dose that relieves pain without causing intolerable adverse effects. Upward dose titration of opioids should be by 25%–50% for patients with moderate pain and by 50%–100% for patients with severe pain (Levy & Samuel; Miaskowski et al.). During a pain crisis, doses may be titrated upward every hour until the patient's pain has dropped into the mild or moderate range. Subsequent dose increases can be ordered every four hours for the rest of the first day and then every 24 hours once the crisis has passed. Because of methadone's long half-life, titration should occur much more gradually, with increases no more frequent than every 24 hours. The risk of the titration guidelines causing respiratory depression in opioid-tolerant patients such as Mrs. J is minimal.

Bone pain can be reduced by non-steroidal anti-inflammatory drugs (NSAIDs) and antiosteoclast drugs (bisphosphonates and calcitonin) (Lussier et al., 2004). NSAIDs also can be used to treat acute postoperative pain and pain from other causes of inflammation. Corticosteroids are beneficial when inflammation-associated edema causes pain, such as headache from intracranial tumors; pain from acute compression of spinal cord, nerve roots, or nerve plexuses; and pain from distention of encapsulated viscera. The latter was the case with Mrs. J and describes why that drug is useful in malignant bowel obstruction. Neuropathic pain can be relieved with tricyclic antidepressants (e.g., nortriptyline, desipramine), anticonvulsants (e.g., gabapentin, carbamazepine), antispasticity drugs (e.g., baclofen), and local anesthetics (e.g., topical lidocaine). Other

agents can be important additions to the analgesic regimen. In the case study, octreotide helped reduce gastrointestinal secretions, relieving the pain, nausea, and vomiting associated with partial obstruction.

Upward titration of opioids and adding co-analgesics are sufficient for pain relief in most patients with advanced cancer (Bell, Eccleston, & Kalso, 2003; Hocking & Cousins, 2003; Jatoi, Podratz, Gill, & Hartmann, 2004; Krantz, Kutinsky, Robertson, & Mehler, 2003; Ripamonti & Mercadante, 2004). Patients in their final days and weeks of life typically require a change in drug or route of administration because of difficulties in swallowing, and these are supplemented by intermittent administration of benzodiazepines (e.g., lorazepam, diazepam, clonazepam) and/or neuroleptics (e.g., haloperidol, chlorpromazine) to control their pain, anxiety, restlessness, and delirium. Most patients do not require palliative sedation to die comfortably (Levy & Cohen, 2005; Lo & Rubinfeld, 2005). Palliative sedation via continuous infusion of midazolam, thiopental, or propofol should be viewed as essential, extraordinary care that should be administered only by palliative care experts for the relief of refractory symptoms in the imminently dying patient (Mercadante, 1995, 1998).

Assessment of Psychosocial Issues Influencing Pain

Successful psychosocial support of the patient and family is contingent on the staff's clear comprehension of the goals of psychosocial care. Clear communication about the goals of care among the physician, social worker, and other professionals helps create cohesive and consistent care. Involvement of a social worker, psychologist, or chaplain can help to optimize the psychosocial care required by the patient and family and often is valuable support for the nursing staff (Ferrell & Coyle, 2006).

Three essential dimensions of psychosocial assessment and treatment were relevant to Mrs. J as a patient facing imminent death: the psychological, social, and spiritual. Across those dimensions, conducting a psychosocial assessment invites the healthcare professional to closely consider the patient's experience using a comprehensive approach (Chochinov et al., 2002; Covinsky et al., 1994).

The psychological evaluation generally includes attention to anxiety, depression, delirium or confusion, and cognitive status. Other important factors to assess include the patient's psychological response to the current situation. In the case study, an understanding of Mrs. J's and her family's coping to date, coupled with their understanding of the current situation, and an initial assessment of their grieving were vital to effective patient management. Although healthcare providers may have seen Mrs. J as a woman who was about to die, her family's report that she had been close to death on many occasions suggested that they may have believed that she might have survived the last crisis.

Key factors of the social assessment include some knowledge of the family structure and their relationships and patterns of communication, as well as the influence that the family members may have on the patient's experience (Panke & Ferrell, 1998). Social assessment also includes evaluating the goals of

Table 3. Equianalgesic Doses^a of Opioid Analgesics for Relief of Severe Pain in Advanced Cancer

ANALGESIC ^b	ORAL DOSE (mg)	IV DOSE (mg)
Morphine ^c	15	5.00
Oxycodone ^b	10	—
Hydromorphone ^c	4	1.50
Fentanyl ^{d,e}	—	0.05

^a Equianalgesic doses were obtained from a variety of studies and experiences. This table is meant to be a practical guide for initial dosing with the exact dose to be determined in each patient by individual titration.

^b Dose interval: every four hours except for methadone (every 6–12 hours), modified-release morphine (every 8, 12, or 24 hours depending on formulation), controlled-release oxycodone (every 12 hours), and transdermal fentanyl (every 48–72 hours)

^c Rectal suppositories are available. Per rectum dose is equal to PO dose.

^d Transdermal fentanyl dose should be calculated as follows: mcg/hour of fentanyl every 3 days = mg of morphine PO every 12 hours.

^e Oral transmucosal fentanyl citrate dosage must be determined by individual titration. Fentanyl units should be applied to the buccal mucosa over a 15-minute period for breakthrough pain. Dose may be repeated in 15 minutes if needed. Unit dose should be increased if patient needs more than 8 units per day.

Note. Based on information from Doyle et al., 1998; Ferrell & Coyle, 2006; Levy & Samuel, 2005; Miaskowski et al., 2005.

care from the patient's and family's viewpoints. In the case study, optimum care was facilitated by understanding that for the patient and family, the goal was pain relief and a comfortable death (Berry & Griffie, 2001).

Consideration of patient and family grieving often has clinical relevance. Patients who have been chronically or seriously ill for months or years face a very different experience than others when confronted with the reality of death. Patients who remain hopeful for a cure, families waiting for a miracle, and those whose faith entails an unwavering hope for cure or long-term survival may begin grieving only when death is imminent.

Management of Psychosocial Influences on Pain

Planning care for Mrs. J and her family for the short duration of her stay until her death was undoubtedly a challenge. The team working concertedly to ensure comfort and spiritual care impacted the quality of care and the long-term grieving of the family (Berry & Griffie, 2001).

Given the desire for privacy and intimacy of a family during a patient's final hours, one psychosocial professional may be designated who can call on other colleagues as needed. The concept of transdisciplinary care can be applied when a single consultant will deliver care relying on colleagues for input and support (Cassidy & Davies, 1998). In the case of Mrs. J, for example, the social worker could consult with chaplaincy and nursing colleagues to address psychosocial needs and call on the chaplain or others as indicated.

In the social dimension, Mrs. J was fortunate to have a supportive family with clear goals of saying good-bye and facilitating a peaceful death. Social support was focused on creating an environment where the family could assist Mrs. J in carrying out those goals. Mrs. J's prolonged illness, multiple admis-

Faith

What is your faith or belief? Do you consider yourself to be a spiritual or religious person? What things do you believe in that give meaning to your life?

Importance and Influence

Is it important in your life? What influence does it have on how you take care of yourself? Have your beliefs influenced your behavior during this illness?

Community

Are you a part of a religious or spiritual community? Is this of support to you and how? Is there a person or group of people whom you really love or are important to?

Address or Application

How would you like me to address these issues in your health care? How might these things apply to your current situation? How can we assist you in your spiritual care?

Figure 3. The FICA (Faith, Importance, Community, and Action) Tool

Note. Based on information from Puchalski, 2002.

American Pain Society Guidelines for Cancer Pain Management

(www.ampainsoc.org): principles of pain management with an emphasis on analgesic treatments, revised in 2003

City of Hope Pain/Palliative Care Resource Center

(<http://prc.coh.org>): offers more than 400 resources and links related to pain and palliative care

National Comprehensive Cancer Network Guidelines

(www.nccn.org): evidence-based guidelines, including areas of pain, palliative care, and other common symptoms in cancer

National Consensus Project for Quality Palliative Care

(www.nationalconsensusproject.org): consensus guidelines published in 2004 to support the development and delivery of palliative care

Figure 4. Resources to Consult When Planning End-of-Life Care

sions, and final rapid decline may have caused her husband to require increased need for bereavement support. If palliative care is truly to be family centered, failing to direct the family to bereavement services would be a missed opportunity (Rando, 2000).

A patient's suffering often is not relieved, despite the best physical, psychological, and social support, if spiritual aspects such as beliefs about death, faith in God or a higher power, unrecognized guilt, or unresolved life conflicts are not addressed. The spiritual care for Mrs. J and her family might include the use of a brief spiritual assessment tool (Lo et al., 2002; Taylor, 2003) to assess the importance of a patient's spirituality (see Figure 3) and referral to the hospital chaplain or outside spiritual counselor, if desired.

Another often-missed opportunity is the use of appropriate ritual. Determining from the family what might be appropriate can create a valued memory for the family in the months and years ahead (Lo et al., 2002). For some families, that ritual may be a prayer or reading of sacred texts. After death, rituals often are important for patients and family members and should be discussed so that appropriate preparations (e.g., having members of the religious community bathe the body, perform special prayers at the bedside) can be made.

Because Mrs. J had been hospitalized on many occasions and cared for repeatedly by the same staff, the staff might be expected to be greatly affected by her death. Support for the nursing staff by the chaplain or social worker undoubtedly will impact their ability to care for future patients with compassion and competence. Psychosocial professionals do a great service in providing follow up for staff who have been most involved in the care of a dying patient.

Conclusion

Mrs. J and her family deserved and received compassionate and competent care as her life ended. That care included prompt assessment of pain and spiritual issues and treatment with appropriate analgesic agents and psychosocial support. Figure 4 provides a list of key resources that may be helpful when

planning care for patients at the end of life. The case of Mrs. J highlights challenging analgesic needs, but her care represents what is needed for the 570,000 people who die from cancer each year in the United States (Jemal et al., 2008).

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References

- American Academy of Hospice and Palliative Medicine. (2004). National consensus project for quality palliative care: Clinical practice guidelines for quality palliative care, executive summary. *Journal of Palliative Medicine*, 7(5), 611–627.
- Bell, R.F., Eccleston, C., & Kalso, E. (2003). Ketamine as adjuvant to opioids for cancer pain. A qualitative systematic review. *Journal of Pain and Symptom Management*, 26(3), 867–875.
- Berry, P., & Griffie, J. (2001). Planning for the actual death. In B.R. Ferrell & N. Coyle (Eds.), *Textbook of palliative nursing* (pp. 382–394). New York: Oxford University Press.
- Cassidy, J., & Davies, D. (1998). Cultural and spiritual aspects of palliative medicine. In D. Doyle, G.W.C. Hanks, & N. MacDonald (Eds.), *The Oxford textbook of palliative medicine* (2nd ed., pp. 951–957). Oxford, England: Oxford University Press.
- Cherny, N., Ripamonti, C., Pereira, J., Davis, C., Fallon, M., McQuay, H., et al. (2001). Strategies to manage the adverse effects of oral morphine: An evidence-based report. *Journal of Clinical Oncology*, 19(9), 2542–2554.
- Chochinov, H.M., Hack, T., McClement, S., Kristjanson, L., & Harlos, M. (2002). Dignity in the terminally ill: A developing empirical model. *Social Science and Medicine*, 54(3), 433–443.
- Covinsky, K.E., Goldman, L., Cook, E.F., Oye, R., Desbiens, N., Reding, D., et al. (1994). The impact of serious illness on patients' families. SUPPORT investigators. Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment. *JAMA*, 272(23), 1839–1844.
- Daaleman, T.P., & VandeCreek, L. (2000). Placing religion and spirituality in end-of-life care. *JAMA*, 284(19), 2514–2517.
- Davis, M.P., & Walsh, D. (2001). Methadone for relief of cancer pain: A review of pharmacokinetics, pharmacodynamics, drug interactions, and protocols for administration. *Supportive Care in Cancer*, 9(2), 74–83.
- De Conno, F., Groff, L., Brunelli, C., Zecca, E., Ventafridda, V., & Ripamonti, C. (1996). Clinical experience with oral methadone administration in the treatment of pain in 196 advanced cancer patients. *Journal of Clinical Oncology*, 14(10), 2836–2842.
- Doyle, D., Hanks, G.W.C., & MacDonald, N. (Eds.). (1998). *The Oxford textbook of palliative medicine* (2nd ed.). Oxford, England: Oxford University Press.
- Ferrell, B.R., & Coyle, N. (Eds.). (2006). *Textbook of palliative nursing* (2nd ed.). New York: Oxford University Press.
- Furst, C., & Doyle, D. (1998). The terminal phase. In D. Doyle, G.W.C. Hanks, & N. MacDonald (Eds.), *The Oxford textbook of palliative medicine* (2nd ed., pp. 1119–1133). Oxford, England: Oxford University Press.
- Hocking, G., & Cousins, M.J. (2003). Ketamine in chronic pain management: An evidence-based review. *Anesthesia and Analgesia*, 97(6), 1730–1739.
- Jatoi, A., Podratz, K.C., Gill, P., & Hartmann, L.C. (2004). Pathophysiology and palliation of inoperable bowel obstruction in patients with ovarian cancer. *Journal of Supportive Oncology*, 2(4), 323–337.
- Jemal, A., Siegel, R., Ward, E., Hao, Y., Xu, J., Murray, T., et al. (2008). Cancer statistics, 2008. *CA: A Cancer Journal for Clinicians*, 58(2), 71–96.
- Kim, P. (2005). Interventional cancer pain therapies. *Seminars in Oncology*, 32(2), 194–199.
- Krantz, M.J., Kutinsky, I.B., Robertson, A.D., & Mehler, P.S. (2003). Dose-related effects of methadone on QT prolongation in a series of patients with torsade de pointes. *Pharmacotherapy*, 23(6), 802–805.
- Levy, M.H., & Cohen, S.D. (2005). Sedation for the relief of refractory symptoms in the imminently dying: A fine intentional line. *Seminars in Oncology*, 32(2), 237–246.
- Levy, M.H., & Samuel, T.A. (2005). Management of cancer pain. *Seminars in Oncology*, 32(2), 179–193.
- Lo, B., & Rubenfeld, G. (2005). Palliative sedation in dying patients. "We turn to it when everything else hasn't worked." *JAMA*, 294(14), 1810–1816.
- Lo, B., Ruston, D., Kates, L.W., Arnold, R.M., Cohen, C.B., Faber-Langendoen, K., et al. (2002). Discussing religious and spiritual issues at the end-of-life: A practical guide for physicians. *JAMA*, 287(6), 749–754.
- Lussier, D., Huskey, A.G., & Portenoy, R.K. (2004). Adjuvant analgesics in cancer pain management. *Oncologist*, 9(5), 571–591.
- Mercadante, S. (1995). Dantrolene treatment of opioid-induced myoclonus. *Anesthesia and Analgesia*, 81(6), 1307–1308.
- Mercadante, S. (1998). Pathophysiology and treatment of opioid-related myoclonus in cancer patients. *Pain*, 74(1), 5–9.
- Miaskowski, D., Cleary, J., Burney, R., Coyne, P., Finley, R., Foster, R., et al. (2005). *Guideline for the management of cancer pain in adults and children*. Glenview, IL: American Pain Society.
- Panke, J., & Ferrell, B. (1998). Emotional problems in the family. In D. Doyle, G.W.C. Hanks, & N. MacDonald (Eds.), *The Oxford textbook of palliative medicine* (2nd ed., pp. 985–992). Oxford, England: Oxford University Press.
- Puchalski, C.M. (2002). Spirituality and end-of-life care: A time for listening and caring. *Journal of Palliative Medicine*, 5(2), 289–294.
- Rando, T.A. (Ed.). (2000). *Clinical dimension of anticipatory mourning*. Champaign, IL: Research Press.
- Ripamonti, C., & Mercadante, S. (2004). How to use octreotide for malignant bowel obstruction. *Journal of Supportive Oncology*, 2(4), 357–364.
- Taylor, E.J. (2003). Spiritual needs of patients with cancer and family caregivers. *Cancer Nursing*, 26(4), 260–266.

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