Effectively Starting and Titrating Intrathecal Analgesic Therapy in Patients With Refractory Cancer Pain

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Approximately 14% of patients with cancer will experience refractory pain (Meuser et al., 2001). Refractory pain can be defined as pain that responds poorly to conventional treatment. In addition, the side effects of opioids and coanalgesics often produce more distressing symptoms than the pain itself. These symptoms and side effects may be numerous and may include nausea, vomiting, sedation, constipation, confusion, and pruritus, among others. The need for expanding analgesic treatment plans must extend beyond the stepwise approach to pain using oral analgesics described in the World Health Organization (WHO) ladder (Coyne, 2003). The ladder, which attempts to guide clinicians to appropriate strengths and types of medications based on pain severity, originally was intended as an analgesic guideline for developing countries; however, it is successful in helping 80%–90% of patients with cancer-related pain achieve relief (Meuser et al.; Zech, Grond, Lynch, Hertel, & Lehmann, 1995). This poses the question, “But what of the other 10%–20% of patients?”

Intrathecal Analgesic Delivery System

An intrathecal analgesic delivery system is one approach that is a step above the WHO ladder (see Figure 1). In their cancer pain guidelines, the American Cancer Society and National Comprehensive Cancer Network (2000) noted the need for this therapy to be considered. In a randomized clinical trial of more than 200 patients with cancer that examined comprehensive medical pain management versus intrathecal drug delivery systems, drug toxicity decreased and pain relief improved when using intrathecal drug delivery systems (Smith et al., 2002). The ideal candidates for intrathecal analgesia are those continuing to experience refractory pain or those experiencing symptoms from analgesic agents themselves (see Figures 2 and 3).

Institutional Requirements

The use of intrathecal therapy has been accepted as an integral system for managing pain. This intervention must be considered and offered in the case of refractory pain or for symptoms from analgesic agents (Smith, Coyne, & Staats, 2004). Typically, intrathecal therapy can be managed easily in the outpatient setting (Smith & Coyne, 2003). Nurses must be trained and supported adequately to provide seamless patient care with minimal risk of complications. A multidisciplinary approach is required to ensure appropriate analgesia. Knowledgeable physicians, nurses, pharmacists, and physical and occupational therapists, as well as appropriate psychosocial support, are important to properly manage pain in this population (Panke & Coyne, 2004). Physicians and advanced practice nurses need to safely assess and prescribe medications based on the type of pain, response to other agents, and potential side effects. Physical and occupational therapists are needed to evaluate functional status and guide patients and families with techniques for maintaining

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Chronic pain because of cancer, or therapy intolerable to the patient
• Life expectancy more than three months
• Pain resistant to aggressive therapy
• Round-the-clock dosing and as needed
  – Nonsteroidal anti-inflammatory drugs, opioids, neuroleptics, antidepressants, etc.
  – Oral, IV, or transdermal infusion with external pump
• High doses of systemic opioids
• Favorable response to intraspinal morphine screening trial
• No contraindications for pump implant

Summary

Options other than those described by the WHO analgesic ladder must be available to ensure comfort with chronic, often painful illnesses such as cancer. Invasive techniques, including epidural and intrathecal therapies, must become readily available to this population of patients. While this change in analgesic practice occurs, appropriate and safe treatment modalities must be established.

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References


Figure 1. Typical Placement of an Intrathecal Pump in the Lateral Abdominal Wall, With the Catheter Tunneled Around and Inserted in the Thecal Sac
Note. Image courtesy of Medtronic Neurological. Reprinted with permission.

Figure 2. Intraspinal Therapy Patient Selection: General
Note. Based on information from Smith & Coyne, 2003.

Figure 3. Intraspinal Therapy Patient Selection: Cancer Pain
Note. Based on information from Portenoy & Lesage, 1999; Smith & Coyne, 2003.

their status. This is a key role because many patients tend to become overactive when pain and symptoms decrease; as a result, they cause new pain issues. A pharmacist’s role includes reviewing medications to help eliminate potential side-effect etiologies.

• More conservative therapies have failed.
  – Inadequate pain relief despite aggressive analgesic titration
  – Unacceptable side effects
• Patient consent
  – Implant
  – Refills or titration
  – Travel may be required.
• Physician is able to manage the patient (or partner with pain specialist).
• No active infection or anticipated need for anticoagulant therapy

Titration Guidelines

The initial opioid dose (always preservative free) should be calculated from the epidural trial dose that helped the patient achieve comfort. Conduct a one- to two-day epidural trial seeking at least a 50% improvement in pain and/or symptoms while encouraging improved function with physical and occupational therapists (Coyne, 2003). The intrathecal hourly dose is typically 10% of the epidural hourly dose. Preservative-free morphine, the only opioid approved by the U.S. Food and Drug Administration for this use, is the opioid of choice because of its hydrophilic nature, which allows a greater spread of opioid within the spine; however, hydromorphone also may be used. Other analgesic agents typically are utilized when pain, such as neuropathic pain, does not respond well to opioids. At the Massey Cancer Center, approximately 40% of patients with cancer require more than one medication, with a small percentage requiring three or more. These guidelines are designed to be a resource; individual patient needs may vary to achieve comfort. Follow all refill titration policies and procedures (Coyne et al., 2004).

Assisting in educating patients and families about medications, and compounding intrathecal medications to allow for stable medications while decreasing the need for frequent refills and frequent clinic visits. Patients also should be scheduled for refills no more than every 60 days, if possible, to decrease travel burden.

Psychosocial support is critical because this population typically has experienced severe pain and/or symptoms for a considerable period; therefore, depression and anxiety are not uncommon. Patients and their families will need support. At the Massey Cancer Center in Richmond, VA, nurses receive specialized training for pump interrogation, dose changes, and emergency stoppage of the pump. A small group of nurses receives additional training followed by validation of skills for pump refill. All staff calculations are confirmed independently by another trained staff member, and two nurses perform each refill (Coyne, Hansen, Laird, Butler, & Smith, 2004). Policies, critical pathways, and algorithms are requirements for initiating, managing, and standardizing intrathecal therapy (Coyne & Du Pen, 2003). Appropriate knowledge, training, and experience are essential for pump management. See Figure 4 for an example of a protocol.

The Massey Cancer Center has developed a patient management system that enables patients to visit the outpatient clinic daily for intrathecal pump titration or refills. No appointments are required; however, they are requested. For after-hours support, the Thomas Palliative Care Unit nursing staff, an inpatient unit in the institution, provides emergency titration. The Massey Cancer Center has supported partnerships with local hospices and rural hospitals to make intrathecal therapy available in community and rural settings. These partnerships decrease the need for lengthy travel while improving analgesia and symptom management.
Inpatient
Morphine or hydromorphone
May increase by as much as 20% every 12 hours as needed

Monitor level of sedation, pain assessment scores, function, and side effects.

Inadequate relief

Consider initiating bupivacaine if morphine dose is greater than 25 mg per day or hydromorphone dose is greater than 6 mg per day.

Start bupivacaine at 3 mg per day. May increase by 15% every 12 hours as needed as inpatient or every 24 hours as needed as outpatient.

With local anesthetics, monitor for leg weakness, dermatome (sensory) level, postural hypotension, and urinary retention.

Start clonidine at 50 mcg per day. May increase by 15% every 12 hours as inpatient or every 24 hours as outpatient. Monitor for hypotension.

Outpatient
Morphine or hydromorphone
May increase by as much as 20% every 24 hours as needed

Rapid Recap
Effectively Starting and Titrating Intrathecal Analgesic Therapy in Patients With Refractory Cancer Pain

A population of patients with cancer suffers from intractable cancer pain and/or symptoms despite aggressive analgesic management.

Intrathecal analgesic therapy may serve as an appropriate intervention for pain control.

Although intrathecal analgesic therapy is not new, many oncology clinicians are not familiar with its benefits or techniques for titration.

Note. If patients require frequent refills, consult pharmacy to determine if higher concentrations are available. Doses are guidelines only; individual patient needs may vary.

Figure 4. Intrathecal Titrating Guidelines
Note. Based on information from Bennett et al., 2000.

References