(Hockenberry, Kline, and Rodgers, 2016). Local intradermal anesthesia of lidocaine is frequently used for LP and bone marrow examination. To reduce the stinging sensation from lidocaine, sodium bicarbonate should be added (see Pain Management, Chapter 5). Deeper infiltration of the muscle and periosteum of the bone with buffered lidocaine further reduces the pain from the large-bore aspiration or biopsy needle entering the bone. For bone marrow studies, LPs, and other procedures, children of preschool age and beyond should be prepared beforehand. Physical care after the procedures is minimal. A small pressure bandage is applied to the bone marrow puncture site, and an adhesive bandage is applied to the LP site. No activity restriction is necessary after the bone marrow test, although the site is usually sore and the child may prefer to remain quiet. Recommendations after LP vary. If medication was instilled, the child may be placed in a slight Trendelenburg position to facilitate circulation of the medicated spinal fluid.

Pain Management

Nurses must be knowledgeable about the basic pathophysiology of cancer pain and treatment-related side effects. The World Health Organization's three-step analgesic pain ladder should be incorporated into the approach to pain management for every child with cancer (Wong, Lau, Palozzi, et al, 2012). Nurses must acquire extensive knowledge of nonopioid and opioid analgesics used in pediatric pain management (see Chapter 5). Interdisciplinary pain management teams are used in many pediatric cancer centers. These teams serve as consultants and provide expertise in the assessment and management of pain. The nurse often serves as the coordinator of care, playing a key role in cancer pain management.

Chapter 5 discusses pharmacologic management of disease-related pain, which involves a variety of methods. It may take more than a trial of one type of medication to find the appropriate agent to manage a patient's pain. Nonsteroidal antiinflammatory drugs (NSAIDs), acetaminophen with codeine, oxycodone, and morphine are commonly used agents in the management of disease-related pain (Wong, Lau, Palozzi, et al, 2012). Appropriate dosing is imperative. Doses are titrated to increase the amount of analgesia