damage that could give rise to neuropathic pain. An epidural or subarachnoid infusion may be initiated if the patient experiences dose-limiting side effects of opioids or if pain is resistant to opioids. Tricyclic antidepressants (amitriptyline, desipramine) and anticonvulsants (gabapentin, carbamazepine) have demonstrated effectiveness in neuropathic cancer pain (see Research Focus box).

Research Focus

Tricyclic Antidepressants to Treat Neuropathic Pain

Although there is limited evidence for the use of antidepressants for the management of pain in children, there is clinical experience on the use of amitriptyline for pain management in children (World Health Organization, 2012). A study of 90 children with irritable bowel syndrome, functional abdominal pain, or functional dyspepsia randomized participants to 4 weeks of placebo or amitriptyline (Saps, Youssef, Miranda, et al, 2009). Both amitriptyline and placebo were associated with excellent therapeutic response. There was no significant difference between amitriptyline and placebo after 4 weeks of treatment. Patients with mild to moderate intensity of pain responded better to treatment.

Pain and Sedation in End-of-Life Care

Many patients at the end of life require doses of opioids that make them sedated but arousable as their disease progresses (cancer, human immunodeficiency virus, cystic fibrosis, neurodegenerative disease). Patients achieve comfort with a combination of opioids and adjuvant analgesics in most situations. Parents need reassurance that the opioids are treating pain but not causing the child's death and that the child's advancing disease is the cause of death.

A small group of patients have intolerable side effects or inadequate analgesia despite extremely aggressive use of medications to relieve pain and side effects. Continuous sedation may be a means of relieving suffering when there is no feasible or acceptable means of providing analgesia that preserves alertness. A continuing high-dose infusion of opioids along with sedation is