Pain Management Strategies for an Opioid-dependent Child Undergoing Amputation of the Lower Extremity

FACILITATORS:
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OBJECTIVES:
1) Discuss implications of opioid dependence for perioperative pain management and subsequent opioid dosing.
2) Analyze the benefits, potential problems, and alternative techniques for epidural analgesia.
3) Describe the pathophysiology of phantom limb pain and management alternatives.

CASE DESCRIPTION:
An eight-year old girl has been in the pediatric critical care unit for four weeks after developing streptococcal sepsis and septic shock. Her course has been complicated by acute lung injury and respiratory failure, renal failure, disseminated intravascular coagulopathy, and purpura fulminans. To facilitate critical care management, she received infusions of fentanyl and midazolam for more than two weeks. She is now receiving oral methadone and diazepam plus intravenous morphine and lorazepam “as needed.” Serum creatinine, BUN, platelet count, and coagulation profile have normalized. She is receiving supplemental nasal oxygen and appears awake and alert but does not respond to questions. The surgeon plans to debride devitalized tissue in the lower extremities and may amputate a portion of the right lower extremity. She will subsequently need pain management for daily dressing changes and is also expected to undergo staged operative procedures for additional debridement, wound management, and skin grafting.

- What are the implications of long-term opioid and benzodiazepine administration?
- Can the patient’s postoperative pain be effectively managed with intravenous opioids? If so, which drug(s) and regimen?
- Would epidural analgesia be more effective? Which drugs and regimen? Can the patient manage PCEA?
- What is a safe period for maintenance of an epidural catheter?
- Does preemptive regional analgesia affect the development of phantom limb pain?
Over the following four weeks the patient underwent frequent dressing changes that were facilitated by epidural analgesia supplemented with intravenous lorazepam. She also underwent three operative procedures, during which the epidural catheter was replaced twice. In response to increasing pain complaints her epidural regimen was changed from fentanyl and bupivacaine to hydromorphone and ropivacaine. She later described feeling her phantom limb and also admitted to feeling burning pain in her legs. During the sixth week of epidural analgesia, she developed lesions suggestive of a cutaneous candidal infection on her back, prompting removal of the epidural catheter.

- Was the change in epidural drug regimen rational?

- What analgesics and adjuvants may be effective in managing neuropathic pain? Are they effective in managing phantom limb pain?

- When should nonpharmacologic interventions such as psychotherapy and behavioral techniques be considered?

- What will you tell the family regarding her prognosis for ongoing pain problems and plan for subsequent opioid and adjunctive analgesic management?

MODEL CASE DISCUSSION
1. What are the implications of long-term opioid and benzodiazepine administration for postoperative pain management as well as subsequent care?
2. Can the patient’s postoperative pain be effectively managed with intravenous opioids? If so, which drug(s) and regimen? How should methadone therapy be adjusted?
3. Would epidural analgesia be more effective? Which drugs and regimen? Can the patient manage PCEA?
4. What is a safe period for maintenance of an epidural catheter? Does tunneling reduce the risk of infection?
5. Does preemptive regional analgesia affect the severity of stump pain and the development of phantom limb pain?
6. What analgesics and adjuvants may be effective in managing neuropathic pain? Are they effective in managing phantom limb pain?
7. When should nonpharmacologic interventions such as psychotherapy and behavioral techniques be considered?
8. What will you tell the family regarding her need for ongoing opioid therapy?
REFERENCES


