

# Effects of an Opioid Taper Algorithm in Hematopoietic Progenitor Cell Transplant Recipients

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**Purpose/Objectives:** To examine the effects of an opioid taper algorithm on the length of taper, pain levels, withdrawal symptoms, and satisfaction with pain management in hematopoietic progenitor cell transplant (HPCT) recipients and nurse documentation of patient response to taper.

**Design:** Quasi-experimental.

**Setting:** A 32-bed HPCT unit in a large tertiary U.S. health-care center.

**Sample:** 106 HPCT recipients, 5–64 years of age.

**Methods:** In phase 1, baseline data were collected from 45 patients during opioid tapers, with no study intervention. In phase 2, an opioid taper algorithm was implemented as the study intervention for 61 patients.

**Main Research Variables:** Phase 1 and phase 2 pretaper and taper opioid dosage, length of taper, nurse documentation, patient-reported pain and withdrawal symptoms, and nurses' perspectives about the use of tapers.

**Findings:** Use of the algorithm in phase 2 resulted in decreasing taper time by a mean of 0.4 days, a significant decrease in withdrawal symptoms, a significant increase in only 1 of 10 aspects of nurse documentation, and no significant differences in patient self-reports of worst pain or satisfaction with pain management. Nausea, vomiting, diarrhea, insomnia, and runny nose were the withdrawal symptoms reported most frequently.

**Conclusions:** Use of the algorithm improved tapering practice somewhat without disadvantaging patients.

**Implications for Nursing Practice:** Use of an opioid taper algorithm may promote consistency of tapering practice.

Many hematopoietic progenitor cell transplant (HPCT) recipients receive opioids for several days or weeks to manage pain that typically escalates after transplant and decreases with engraftment (Ben David & Musgrave, 1996; Chapko, Syrjala, Schilter, Cummings, & Sullivan, 1989; Ford, 1991; Gaston-Johansson, Franco, & Zimmerman, 1992; Hill et al., 1990; Pederson & Parran, 1999; Syrjala & Chapko, 1995). Increasing amounts of an opioid are required to manage rising pain levels or to address the development of opioid tolerance (Anand & Arnold, 1994; McGuire, Yarbrow, & Ferrell, 1995; Schug, Zech, & Grond, 1992). Physical dependence may develop after two to three days of opioid therapy (McGuire et al., 1995).

When pain resolves, opioids should be tapered gradually to prevent the development of withdrawal symptoms in physically dependent patients (Anand & Arnold, 1994; Jacox et al., 1994; McGuire et al., 1995). Tapering practice varies, and nurses state

## Key Points . . .

- Use of an opioid taper algorithm in transplant recipients can shorten the length of taper and significantly decrease withdrawal symptoms.
- Children receive significantly more opioids in morphine equivalents per kilogram (MEK) during opioid tapers and experience significantly longer tapers than adults.
- Length of opioid tapers correlates with length of pretaper opioid therapy and pretaper MEK.
- Patients were satisfied with their pain management and experienced low pain levels when opioids were tapered with and without using an algorithm.

that patients often experience withdrawal symptoms (Pederson & Parran, 1997). Opioid tapering practice may affect patient outcomes, such as length of hospital stay and patient satisfaction with management of withdrawal symptoms and pain.

In the absence of an opioid taper guideline, clinicians rely on their knowledge of opioids, intuition, and past clinical experiences to guide decisions regarding the rate of taper and the assessment and treatment of withdrawal symptoms. Because clinicians vary in regard to knowledge and experience with opioid tapering, patients would benefit from a research-based guideline that provides decision-making cues for clinicians to observe when tapering opioids. With a guideline, clinicians would be able to individualize a taper for each patient and use an expedient taper for patients who have no withdrawal symptoms.

No research-based opioid taper guideline was found in the literature. The researchers reported baseline opioid tapering

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