


Chapter 4

Innovative Techniques and Nursing Practices in Pain Management in Surgical Patients

Dilek Gümüş

 <https://orcid.org/0000-0002-5338-9377>

Bilecik Şeyh Edebali University, Turkey

ABSTRACT

In recent years, the development of new techniques to improve postoperative outcomes, minimize complications, and increase patient satisfaction has led to valuable advances in postoperative pain management in surgical patients. Multimodal analgesia aims to reduce opioid consumption using a pharmacological and non-pharmacological method targeting different pain pathways. In addition to patient-controlled analgesia and epidural/spinal analgesia techniques, individualized pain management can be achieved with the use of new-generation local anesthetics and nerve blocks that provide long-term analgesia. However, due to their side effects, non-pharmacological methods are recommended as they offer a more holistic approach by reducing dependence on drugs. Digital health solutions have the potential to inform personalized treatment plans using real-time data for pain management. It is the responsibility of nursing to implement these methods and educate patients about them, and therefore ‘interprofessional pain management’ remains an important theme.

DOI: 10.4018/979-8-3373-1772-4.ch004

INTRODUCTION

Postoperative pain management has undergone significant transformation over the past several decades. Historically, pain relief after surgery was often inadequate, with opioids serving as the primary treatment despite their well-known side effects and limitations (Imani, 2011; Rawal, 2016). Over time, the recognition of the negative consequences of poorly controlled pain—including delayed recovery, increased risk of chronic pain, and higher healthcare costs—spurred the development of more comprehensive approaches (Gan, 2017; Imani, 2011). The introduction of multimodal analgesia, which combines different classes of medications and techniques, marked a major advance, aiming to improve pain control while minimizing opioid use and associated adverse effects (Carlyle et al., 2018; Imani, 2011; Min & Luo, 2017; Viscusi et al., 2016). Regional anesthesia techniques, such as nerve blocks and local infiltration, have also gained prominence for their effectiveness and safety, although their adoption varies by procedure and institution (Min & Luo, 2017; Rawal, 2016). In recent years, guidelines have emphasized individualized, procedure-specific pain management plans, preoperative education, and the integration of non-opioid medications and non-pharmacological interventions (Carlyle et al., 2018; Imani, 2011; Viscusi et al., 2016). Despite these advances, surveys indicate that a substantial proportion of patients still experience moderate to severe postoperative pain, highlighting ongoing challenges and the need for further research and implementation of evidence-based practices (Meissner & Zaslansky, 2019; Rawal, 2016; Small & Laycock, 2020).

Traditional approaches to postoperative pain management, particularly the reliance on opioids, have proven inadequate for many patients. Despite decades of clinical use, surveys from the US and Europe reveal little improvement in pain outcomes, with more than 80% of patients in some settings experiencing insufficient pain relief after surgery (Gan, 2017; Rawal, 2016). Opioids, while effective for acute pain, are associated with significant drawbacks such as adverse effects, risk of dependency, and limitations in dosing, which often result in poorly controlled pain (Carlyle et al., 2018; Gan, 2017; Rawal, 2016). Furthermore, conventional “one size fits all” guidelines fail to account for the variability in pain experiences across different surgical procedures and patient populations, leading to suboptimal care (Rawal, 2016; Viscusi et al., 2016). Although multimodal analgesic techniques and non-opioid alternatives are increasingly used, evidence supporting their effectiveness is inconsistent, and many promising interventions remain underutilized or lack robust clinical validation (Chou et al., 2016b; Carlyle et al., 2018; Rawal, 2016). The persistence of poorly managed postoperative pain is linked to increased morbidity, delayed recovery, and a higher risk of developing chronic pain, underscoring the

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