

Preoperative Medication Management: Filling in the Gaps

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Preoperative medication management is central to the delivery of high-quality surgical care. The successful management of patients through an operation must address medication concerns related to anesthesia, individual patient care needs, and the surgical procedure itself. The number of patients who require preoperative medication management is formidable, with half of all patients undergoing surgery on some type of medication.¹ Moreover, the number of medications and complexity of management increase with patients who often require surgery, namely older patients and those with multiple comorbidities. Largely because of adverse events in medication management, patients taking medications before surgery have a three times higher risk of postoperative complications than those who are not taking medications.² Effective preoperative management of medications is a critical part of optimizing a patient's clinical status for best possible outcomes before, during, and after surgical procedures. Despite the abundance of literature available on preoperative and perioperative management, significant gaps remain for providers caring for surgical patient populations at high risk for poor outcomes.³

Prior reviews of preoperative medication management have attempted to present evidence on this broad and potentially unwieldy topic. These data are challenging, not only because the topic is vast but also because data are often limited and insufficient to provide evidence-based recommendations.^{4,5} Past reviews are, in general, effective in describing available research for managing commonly prescribed classes of drugs within physiologic frameworks, including cardiovascular, pulmonary, endocrine, rheumatological, and psychological conditions. Furthermore,

these reviews provide useful information to the clinician by concisely presenting recommendations for patients often encountered in practice. A substantial opportunity remains to describe preoperative medication management for other conditions and within specific patient populations.

For example, patients who undergo solid organ transplants often require nontransplant surgical interventions.⁶ Critical attention needs to be paid to patients' immunosuppressive and prophylactic therapies for close monitoring and adjustment to protect the transplanted organ in lieu of changing physiological and metabolic demands. Patients with chronic kidney disease and end-stage renal disease often have significant comorbidities, resulting in a veritable pharmacopoeia of medications. With improvements in dialysis prescriptions and careful monitoring by primary care physicians, this patient population may extend their life span, potentially requiring more surgical intervention.⁷ Evidence-based medicine, however, is lacking to guide surgeons and other interventionalists in preoperative and perioperative medication management protocols for these patients.⁸ The geriatric population poses another potentially vulnerable subset of patients because data have clearly shown an increased risk of postoperative morbidity and mortality with increasing age.⁹ Although age itself is an independent risk factor, comorbidities and related pharmacologic therapeutics also play a significant role.¹⁰ Management preoperatively and perioperatively in these areas often is guided by scarce evidence and nonrigorous clinical trials.

The difficulty of maintaining proficiency in the preoperative management of patients with multiple comorbidities is a daunting task to any clinician, but perhaps even more concerning is management of the unknown. The nonprescription use and abuse of medications among young and old alike are becoming more prevalent, yet often they are difficult to detect. For example, prior chronic use of opioid analgesics can lead to a spectrum of postoperative complications ranging from ileus to withdrawal.^{11,12} The clinician is faced not only with the management of postoperative recovery but also the complexities of additional medical issues not initially anticipated. Ultimately it is the responsibility of the caring physician to identify and manage the preoperative state of patients to prepare them for the best possible outcomes during and after surgery; however, as we describe, the nature of this task is growing in magnitude and may not even be anticipated in some instances.

As medical management and therapeutics improve, older patients with chronic comorbidities have a unique set of additional and critically important medical needs that must be addressed, including optimal medication management. Although past reviews describe existing standards of care in preoperative management, significant gaps remain in evidence and information to guide clinicians caring for many patients who are at high risk for poor outcomes. In particular, some gaps pertain to preoperative medication management of patients with solid organ transplants, patients with kidney disease, and older adults. Additional challenges are introduced when patients use or abuse nonprescribed medications (eg, opioid analgesics).

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The importance of preoperative medication management cannot be understated. There is a tremendous opportunity to fill in those gaps.

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