

Rational Use of Medicines in Modern Surgical Practice

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Medicines play an essential role throughout surgical care, from preparing patients for procedures to managing pain, preventing infections, and supporting recovery after surgery. However, the benefits of pharmacological treatment depend on appropriate selection, dosing, timing, and duration. Rational use of medicines requires clinicians to choose the most suitable treatment according to the patient's clinical condition, while considering safety, effectiveness, affordability, and the risk of unnecessary medication exposure.

In surgical practice, inappropriate medication use can occur at several stages of patient care. Unnecessary or prolonged antibiotic therapy, inappropriate drug combinations, incorrect dosing, and inadequate medication review may increase the risk of adverse effects, drug interactions, treatment failure, and additional healthcare costs. Particular attention should be given to antibiotic prescribing because inappropriate antimicrobial use can contribute to antimicrobial resistance, which poses an increasing challenge in both hospital and surgical settings.

Antibiotic prophylaxis is an important example of rational prescribing in surgery. Antibiotics should be selected according to the type of procedure and the patient's individual risk factors, administered at the appropriate time, and continued only when clinically justified. Prolonged or unnecessary post-operative antibiotic use does not necessarily improve outcomes and may expose patients to avoidable complications and contribute to antimicrobial resistance.

Pain management is another important component of rational medicine use in surgical patients. Appropriate selection and dosing of analgesic medicines can improve comfort, mobility, and recovery while minimizing adverse effects. Where clinically appropriate, multimodal pain management can help reduce excessive reliance on individual medications and may improve postoperative recovery.

Medication safety also requires careful review of medicines that patients are already taking before surgery. Comorbidities, allergies, drug interactions, renal or hepatic impairment, and the use of multiple medications should be considered when developing a perioperative treatment plan. Collaboration among surgeons, anesthesiologists, pharmacists, nurses, and other healthcare professionals can help identify and prevent medication-related problems.

Patients also have an important role in the safe use of medicines. Clear instructions regarding dosage, timing, duration, possible adverse effects, and medication restrictions can improve adherence and reduce preventable errors. Patients should be discouraged from self-medicating, particularly with antibiotics or prescription medicines, without appropriate professional guidance.

Modern surgical care increasingly emphasizes individualized treatment and evidence-based decision-making. Nevertheless, the fundamental principles of rational prescribing remain essential. Careful medication selection, appropriate antimicrobial stewardship, effective pain management, regular medication review, and clear patient counselling can contribute to safer surgery and better clinical outcomes.

Rational medicine use should therefore be regarded as an integral part of quality surgical care rather than an isolated prescribing issue. By promoting responsible medication practices across the perioperative period, healthcare professionals can reduce preventable harm, limit antimicrobial resistance, control unnecessary healthcare expenditure, and support better recovery for surgical patients.