

Preface

Critically ill patients are at risk for a higher frequency and severity of adverse drug events (ADEs) compared to non-critically ill patients. A contributing factor to this risk is the use of high-risk medications in the treatment of critically ill patients, often in combination. High-risk medications as defined by the Institute for Safe Medication Practices are drugs when used in error increases the risk for injury to the patient. The Joint Commission defines high-risk medications as “medications involved in a high percentage of medication errors or sentinel events and medications that carry a high risk for abuse, error, or other adverse outcomes”. According to the Institute for Safe Medication Practice’s list, many high-risk medications are those administered intravenously (IV), which is a more common route of administration in critically ill patients. Also, the therapeutic categories for high-risk medications are drugs more frequently administered to patients in the intensive care unit. Examples of high-risk medications include anticoagulants, opioids, sedatives, anti-hypertensives, anti-infectives, and electrolytes. Regulatory bodies are requiring active institutional surveillance of high-risk medications. Hypervigilant monitoring of high-risk medications is necessary to prevent patient harm, especially in populations that have dosing challenges.

Special patient populations typically refer to individuals that deviate from the norm. When prescribing medications, there are subsets of individuals that require specific dosing considerations. Special patient populations for purposes of this book are considered individuals that require atypical dosing considerations of drugs due to non-average weight (overweight and underweight), hepatic or renal dysfunction, extracorporeal circulation devices, advanced age, pharmacogenetic alterations, are hemodynamically unstable, or require therapeutic hypothermia. In general, critically ill patients constitute a majority of this special patient population. Dosing challenges are a safety concern in these special patient populations since there is a risk of unwanted ADEs from overdosing and therapeutic inefficacy from underdosing. Often, the lack of data on dosing in special patient populations requires clinicians to extrapolate pharmacokinetic drug characteristics based in either volunteers or non-ICU patients to estimate appropriate doses in the critically ill.

Dosing challenges of high-risk medications in special patient populations further compounds the risk of injury to the patient. This book will review high-risk IV medication dosage considerations for special patient populations. Also, safety concerns of high-risk medications are discussed to aid the clinician in cautious monitoring. The goal of this book is to provide clinicians with tools to minimize adverse drug events with IV high-risk medications while proving maximal beneficial clinical effects of these drugs to the critically ill.

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