

Pharmacology in the Geriatric Patient



Katherine Louise Welker, MD, MPH*, Mark B. Mycyk, MD

KEYWORDS

• Aging • Polypharmacy • Drug interactions • Clinical pharmacists

KEY POINTS

- A higher proportion of emergency department patients in the future will be elderly.
- Elderly patients are often prescribed multiple medications by multiple providers.
- Physiological changes with age affect drug metabolism, effect, and elimination.
- Drug interactions are more common in elderly patients.
- Involving clinical pharmacists can avoid drug interactions and polypharmacy and improve resource utilization.

INTRODUCTION

According to the US Census Bureau, from 2012 to 2050 the country will undergo significant aging, wherein the proportion of persons 65 years and older (defined as “older population”) will increase at a more rapid pace when compared with persons younger than 65 years.¹ As technology and medical knowledge continue to advance, a growing number of older patients will survive previously fatal disease processes, such as cancer, organ transplantation, and human immunodeficiency virus. With this increasing proportion of elderly patients, pharmacologic issues specific to this patient population will become more pronounced because the need for long-term medication use naturally increases with age.²

Although medication reconciliation in the emergency department (ED) has been an important national priority, understanding the long-term implications of polypharmacy has only recently received close attention. Recent data confirm that most front-line caregivers have seen increased rates of prescription drug use in all ages in the United States (from 51% in 1999–2000 to 59% in 2011–2012).² More importantly, during that same time period, the rate of polypharmacy in the United States doubled. Simply being on a few medications when younger significantly increases the risk for polypharmacy as one gets older.³ The problem of polypharmacy is not limited to the United States,

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Department of Emergency Medicine, Cook County Health and Hospitals System, 1900 West Polk Street, Chicago, IL 60612, USA

* Corresponding author.

E-mail address: welkerk@gmail.com

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but instead is a worldwide phenomenon. A Scottish study demonstrated patients prescribed 10 or more medications increased from 4.9% in 1995 to 17.2% in 2010.⁴ Polypharmacy in the elderly is particularly important to recognize in the ED, because with increased age comes increased frailty, defined here as decreased function of multiple organs, loss of physiologic reserve, and increased risk of disease and death.

The definition of “polypharmacy” is controversial. It is important to note 2 themes, which emerge consistently in most published works on polypharmacy: either too many medications are prescribed or medications that are not clinically indicated are administered.^{5,6} Definitions of polypharmacy in published studies have ranged from 2 to 10 prescribed medications. Today, the most commonly accepted definition for polypharmacy by scholars in current use of 5 or more prescribed, because that number of medications is associated with poor mental and physical health.⁷

PATIENT EVALUATION OVERVIEW

Complications from medications should always be considered in the emergency physician’s (EP) differential diagnosis.⁸ Medication overuse and polypharmacy are only recently being recognized as common reasons for ED evaluation, and the number of cases will continue to increase as the population gets older and more patients are prescribed even more medications.^{9,10} Acute delirium from pharmaceuticals is under-recognized in the elderly, but should always be considered near the top of the EP’s differential.^{11,12} Elderly patients undergoing ED evaluation for altered mental status or delirium could result from using too many medications prescribed by too many providers, in cases when a patient unintentionally uses leftover medications that were discontinued but not discarded appropriately, in cases when they have visual impairment and take the wrong medications, in cases where they use another household member’s medications in place of their own, or in cases when they use their pets’ medications in addition to their own.¹³

Evaluation of medications should happen at multiple stages during the ED visit, from the time of initial triage until final disposition to home or to the inpatient unit. It should include currently prescribed medications, previously prescribed medications, access to other household member or pet medications, and use of over-the-counter and herbal products. Despite progress in medical reconciliation with the introduction of electronic health records (EHRs), problems specific to this system include incomplete lists of medications when a patient uses multiple health facilities, historical medications not being verified, but remaining in the record, and lack of universal participation in medical record sharing, such as Care Everywhere. Use of an ED pharmacist can assist with rapid assessment of drug-drug interactions, adverse drug reactions, and other pharmaceutical-related complications. In fact, American College of Emergency Physicians recognizes the importance of ED pharmacists in a 2015 position statement: “The emergency medicine pharmacist should serve as a well-integrated member of the ED multidisciplinary team who actively participates in patient care decisions, including resuscitations, transitions of care, and medication reconciliation to optimize pharmacotherapy for ED patients.”¹⁴

Several tools have been developed to prevent polypharmacy or inappropriate medication use in elderly patients; although not ED-friendly, it is important for the EP to be familiar with them. The Beers Criteria, developed by geriatricians and updated in 2015, are the most widely used tool for evaluating appropriate medication use in the elderly.¹⁵ The utility of the Beers Criteria is easily illustrated by comparing the difference between nursing home residents cared for by family medicine physicians and those cared for by geriatricians. Those cared for by family medicine physicians had

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