Medication Use and Risk of Falling in a Geriatric Outpatient Population

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Abstract and Introduction

Abstract

Background: Studies have shown that approximately one third of community-dwelling people aged 65 years and older will experience a fall each year. Many studies indicate that use of multiple medications may put patients at an increased risk of falling, but few studies have been conducted to correlate the number of medications with the risk of falls.

Objective: To determine the medications most frequently used in patients aged 65 years or older who have experienced a fall within the past year, with particular attention to type or number of medications most commonly associated with multiple falls or a fall with injury.

Methods: We conducted a chart review in an outpatient internal medicine clinic over a 13-month period. A total of 118 patients 65 years of age or older who were taking 4 or more medications and had experienced at least 1 fall in the previous 12 months were included. Data relating to sex, age, race, diagnoses, medications, and number and type of falls were obtained during the chart review. The primary end point of the study was number and type of medications most commonly used in patients experiencing a fall.

Results: A total of 118 patients were examined for trends in fall risk. A logistic regression model and receiver operating characteristic curve demonstrated significant fall risk with the addition of medications, with patients experiencing a 14% increase in fall risk with the addition of each medication beyond a 4-medications regimen (OR 1.14; 95% CI 1.02 to 1.27; p = 0.027). The use of 4 or more medications has also been examined and is often considered a risk factor when determining a patient’s fall risk.

Conclusions: The addition of medications is associated with a significant increase in risk of falls in elderly patients, regardless of drug class. Further studies are needed to assess the possible increased risk of falls with increasing number of medications.

Introduction

As the percentage of elderly adults in the general US population grows, falls in this group have come to the forefront as a serious and growing health concern. Studies have shown that approximately one third of community-dwelling patients aged 65 years or older will experience a fall each year. The Centers for Disease Control and Prevention estimates that these falls are the leading cause of injury-related deaths in older adults as well as the most common cause of nonfatal injuries and hospital trauma admissions in elderly patients. In these studies, a fall is defined as an episode in which “a person unintentionally comes to rest on the ground or another lower level.” A fall with injury is defined as a fall that causes a patient “to limit their regular activities for at least a day or to go see a doctor.” In 2010, more than 2 million people aged 65 years or older experienced an injury due to a fall. Without intervention, this problem will likely worsen as the geriatric population grows. Estimates from the US Census Bureau predict that the geriatric population will nearly double in the next 30 years and will account for more than 20% of the general population.

Many studies have been conducted to examine the variety of factors that contribute to a geriatric patient’s risk of falling. One important factor in determining fall risk is medication use. Studies have shown that specific medications may put patients at an increased risk of falling, while other research attributes falls to dangerous combinations of medications or concurrent disease states. Fick and colleagues brought attention to the issue of potentially inappropriate medication use in the elderly with the Beers Criteria, a list of medications to avoid using in elderly patients because of risks of harm that potentially outweigh the benefits of use. The use of 4 or more medications has also been examined and is often considered a risk factor when determining a patient’s fall risk. These risks may be attributed to an increasing risk of dangerous drug interactions or to additive or enhanced effects of medications. Lastly, specific types of medications, such as psychotropics or cardiovascular agents, may also increase the likelihood that a patient will experience a fall.
While many prospective studies examine the incidence of falls in patients taking specific medications, there are few studies that analyze the number and type of medications that are most prevalent in people who have already experienced a fall. These patients are at the highest risk of an additional fall[10,11] making them ideal candidates to examine for trends in medication use. Given the variable results available in the literature, the objective of this study was to assess the number and type of medications that were most commonly prescribed to these high-risk patients who had recently experienced a fall. Particular interest was taken in examining the number and type of medications used by patients who reported multiple falls or a fall with injury during the examined period.