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Avoiding Medication Pitfalls

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Educational Objectives

1. Discuss the prevalence and risk factors for adverse drug events in older people.
2. Identify selected medications that often should be avoided in older people.
3. Discuss methods to ensure safe medication use.

Background

For elderly people, morbidity and mortality from many common maladies, such as heart disease, cholesterol disorders, cancer, hypertension, diabetes, and many others, have decreased due to advances in drug therapy. However, the potential for drug-related problems is significantly increased in older patients. Drug-related problems include unwanted side effects, difficulties with following prescribed directions, unafford-ability of the medication, over- and under- treatment, and improper dosage. Often, these problems are predictable and preventable. Drug-related problems often prevent desired therapeutic goals from being achieved, are often masked as new medical problems, and have tremendous costs, both economic and humanistic. Selecting medications for use by elderly people can be a challenging and difficult task. Unlike younger adults, elderly individuals often have multiple medical problems and use multiple medications. Drug-drug interactions, drug-disease interactions, and physiologic alterations from aging must be considered before prescribing a medication in an older person.

Adverse Drug Events

In 1994, Leape and colleagues identified medications as the most common cause of adverse events in hospitalized patients, accounting for more than 19% of all adverse events. In this study, patients aged 65 years and older had the highest adverse drug event rates of all age groups. Cardiovascular, anticoagulation, and antibiotics were common classes of drugs involved in these adverse events. An adverse drug event is usually defined as an injury caused by a medication. Gray and colleagues (1998)

examined adverse drug events in hospitalized patients 70 years of age and older. Approximately 15% experienced an adverse drug event, with cardiovascular and narcotic pain medications as the most common causes. Drug-induced confusion was a common outcome caused by narcotic pain medications, anxiety medications, and an antidepressant. Although numerous studies have been published examining adverse drug events in hospitalized patients, little data are available to know the scope of the problem in community-dwelling elderly. Studies indicate that as many as 10 - 20% of geriatric hospitalizations are caused by adverse drug events. Since most adverse drug events do not result in hospitalization, the magnitude of these problems in non-hospitalized individuals must be greater. It has been estimated that adverse drug reactions in community-dwelling elderly account for 2.2 million physician visits and 1.1 million laboratory tests each year (Chrischilles, Segar, Wallace, 1992).

Risk Factors for Adverse Drug Events

Elderly people are predisposed to unwanted effects of medication for numerous reasons. Some of these reasons include age- and disease-associated alterations in physiology that can affect how the body metabolizes, eliminates, and responds to drugs, the presence of multiple concurrent diseases, and the use of multiple concurrent drugs, including prescription, nonprescription and herbal remedies. Other identified risk factors include low body weight and age greater than 85 years.

The risk of adverse drug reactions and geriatric syndromes such as delirium, cognitive impairment, falls, and incontinence increases as the number of medications taken increases (Hanlon, Schmadler, Ruby, Weinberger, 2001). Patients taking four or more medications are at increased risk of falling, and the risk is greatest in patients taking psychotropic drugs (American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention, 2001). Older people and their caregivers must be educated to identify common medication side effects and how to seek help. All too often onset of a new problem, such as incontinence, is ascribed to old age and proper medical attention may not be sought. Patients, caregivers, and health care providers must share the responsibility for monitoring the occurrence of adverse drug events and resolving them promptly. A medication that a person has taken for many years may be the cause of a new drug-related problem and must not be overlooked as a cause.

Medications to Avoid

Many adverse drug events occur because prescribers select less than optimal drugs or fail to use appropriate lower doses in elderly people. In 1991 Beers and colleagues published the first systematic attempt to define inappropriate prescribing in elderly patients. These investigators designed criteria to evaluate medication use in frail nursing home residents. They developed a list of medications for which, in general, the risks of adverse events outweighed the potential benefits. This list of potentially inappropriate medications included drugs that should almost always be avoided in the elderly, or drugs for which the dose and duration of therapy should be limited to avoid adverse events. Applying the Beers' criteria to various settings showed that the rate of inappropriate prescribing ranges from approximately 14% to 40% (Beers et al., 1992; Golden et al., 1999; Stuck et al., 1994; and Wilcox, Himmelstein, & Woolhandler, 1994).

More recently new criteria were developed by Beers (1997) to list drugs that are potentially inappropriate for any elderly person, regardless of setting. Some of the listed drugs or drug classes to avoid are: propoxyphene (Darvon®), indomethacin (Indocin®), most muscle relaxants, long-acting benzodiazepines (Valium®, Librium®, Dalmane®), amitriptyline (Elavil®), diphenhydramine (Benadryl®), and meperidine (Demerol®). These drug should be avoided because safer and equally or more effective drugs are available. In general, drugs on the Beers list of inappropriate medications should not be used; however, in some circumstances with appropriate monitoring, their use may be warranted. In 1999, the federal Healthcare Financing Administration incorporated most the 1997 Beers' criteria into federal regulations governing medication use in skilled nursing facilities to decrease the incidence of adverse outcomes from selected medications. As new drugs constantly enter the marketplace, the Beers' list of potentially inappropriate medications quickly becomes outdated.

Safe Medication Use

Older people should be maintained on the fewest number of medications prescribed at the lowest effective dose to minimize drug-related problems. All too often, new drugs are added to treat a side effect of another medication, a practice that should be avoided. Nonprescription drugs and herbal products can also contribute to drug-related problems and older individuals should not use these products without the advice of a knowledgeable healthcare provider. The need for continued medication must be reassessed periodically, and drugs no longer necessary should be discontinued. All people using medications should understand the directions for use and these directions should be periodically reinforced.

Case Study

Mrs. Little is an 82-year-old widow who lives alone in her house. Her daughter, who lives nearby, calls every morning to check on Mrs. Little. Recently, when there was no answer, her daughter went to the house and found Mrs. Little lying on the kitchen floor. She was taken to the emergency room by an ambulance. Mrs. Little was found to be confused, had a broken hip, and was admitted to the hospital for evaluation and treatment.

Mrs. Little used the following medications while at home: digoxin (Lanoxin®) 0.25 mg/day, furosemide (Lasix®) 40mg/day, diazepam (Valium®) 5 mg as needed for anxiety, and nonprescription Sominex tablets (contains 25mg diphenhy-dramine) as needed for sleep. Mrs. Little had developed cold symptoms and had begun taking a nonprescription cold and flu capsule (contains pseudo-ephedrine 30 mg and diphenhy-dramine 25 mg) twice daily.

Within 24 hours following admission to the hospital, Mrs. Little's confusion cleared and she underwent surgery to repair her hip. She was later discharged to a nursing facility for continued care and recovery from surgery.

Study Questions

1. What would be an appropriate approach to determine if Mrs. Little's fall was related to her medication?
2. What potential problem existed in Mrs. Little's use of nonprescription medication?
3. What advice should be given to older people and their caregivers regarding safe use of medications?

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