Adverse Drug Reactions: How Serious Is the Problem And How Often and Why Does It Occur?

Although some adverse drug reactions (ADRs) are not very serious, others cause the death, hospitalization or serious injury of more than 2 million people in the United States each year (more than 100,000 are fatalities). In fact, ADRs are one of the leading causes of death in the U.S. Most of the time, these dangerous events could and should have been avoided. Even the less drastic reactions, such as change in mood, loss of appetite and nausea, may seriously diminish a person's quality of life.

Despite the fact that more adverse reactions occur in patients age 60 or older, the odds of suffering an ADR really begin to increase before age 50. Almost half (49.5 percent) of the Food and Drug Administration (FDA) reports of deaths from ADRs and 61 percent of hospitalizations from ADRs are in people younger than 60.

Many physical changes that can affect the way a body handles drugs begin when people reach their 30s, but the increased prescribing of drugs does not begin for most people until they enter their 50s. At that point, a person's amount of prescription drug use starts increasing significantly, and therefore the odds of having an ADR also increase. The risk of a serious drug reaction is about 33 percent higher in people aged 50 to 59 than it is in people aged 40 to 49.

Adverse reactions to drugs cause hospitalization of 1.5 million Americans each year

An analysis of numerous studies found that approximately 1.5 million U.S. hospitalizations a year were caused by ADRs. This means that, every day, more than 4,000 patients in the U.S. have drug reactions so serious that they need to be admitted to hospitals.

A review of patients admitted to medical wards found that although for 3.8 percent of hospital admissions, ADRs led directly to hospitalization, a whopping 57 percent of these drug reactions were not recognized by the attending physician at the time of admission. As in numerous other studies, many of these admissions should have been prevented. In fact, 18.6 percent of all drugs prescribed prior to admission were contraindicated.

Another review of studies of the percentage of hospital admissions related to bad drug reactions found that up to 88 percent of ADR-related hospitalizations of the elderly are preventable. In addition, elderly people were four times more likely to be hospitalized by ADR-related problems than nonelderly.

Although the rate of drug-induced hospitalization is higher in older adults (an average of about 10 percent of all hospitalizations for older adults are caused by ADRs) because they use more drugs, a significant proportion of hospitalizations for children also are caused by ADRs.

A recent review of all studies concerning the reasons for pediatric hospitalization (of children under the age of 19) found that 2.09 percent of all pediatric hospitalizations were caused by ADRs and that 39 percent of these were life-threatening. About 3.8 million children under the age of 19 are hospitalized each year in the U.S. This means that in one year, there are about 79,000 children (2.09 percent x 3.8 million children) admitted to the hospital because of an ADR, with 31,000 of these children having life-threatening adverse reactions.

Adverse reactions as a major cause of emergency room visits

A review of studies concerning the causes of people going to hospital emergency rooms found that as many as 28 percent of all emergency department visits were drug-related, with a large proportion of these visits due to ADRs and inappropriate prescriptions. Of all of the drug-related visits, the authors of the review found that 70 percent were preventable.

Adverse reactions occurring during hospitalization

In addition to the 1.5 million people a year who are admitted to the hospital because of ADRs, three-quarters of a million people each year develop an adverse reaction after they are hospitalized. According to national projections based on a study involving ADRs developed in hospital patients, 770,000 additional patients a year — more than 2,000 patients a day — suffer an adverse event caused by drugs once they are admitted. Many of the reactions in the patients studied were serious, even life-threatening, and included cardiac arrhythmias, kidney failure, bleeding and dangerously low blood pressure. People with these adverse reactions had an almost twofold higher risk of death compared to otherwise comparable hospitalized patients who did not have a drug reaction.

Most important, according to the researchers, is that almost 50 percent of these adverse reactions were preventable. Among the kinds of preventable problems were adverse interactions between drugs that should not have been prescribed together (hundreds of these are listed

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in the Drug-Induced Diseases section of WorstPills.org), known allergies to drugs that had not been asked about before the patients got a prescription, and excessively high doses of drugs prescribed without considering the patient's weight and kidney function.

Thus, the number of people hospitalized from ADRs plus the number of people who had an adverse reaction "caused" by hospitalization equals more than 2.2 million people a year, or 6,000 patients a day, suffering from drug-induced adverse reactions. In both situations, many of these drug-induced problems should have been prevented.

Dangerous prescribing outside the hospital

Several published studies have examined the extent to which people are prescribed drugs that are contraindicated because of safer alternatives. Some of these studies are based on the "Do Not Use" principle we have advocated concerning certain drugs for more than 16 years in our "Worst Pills, Best Pills" books, WorstPills.org and monthly newsletter.

One study, in which the authors stated that "Worst Pills, Best Pills stimulated this research," found that almost one out of four older adults living at home — 6.6 million people a year — were prescribed a "potentially inappropriate" drug or drugs, placing them at risk of such adverse drug effects as mental impairment and sedation. This high number of inappropriate prescriptions was found even though the study examined only the use of a relatively short list of needlessly dangerous drugs (fewer than the number of drugs listed as "Do Not Use" drugs on WorstPills.org).

Other researchers looked at people for whom a contraindicated drug was prescribed, but also at prescriptions for older people involving two other categories: questionable combinations of drugs and excessive drug treatment durations. This study's authors categorized all of these as "high-risk prescribing" and limited their analysis to just the three classes of drugs most commonly causing drug-related illness: cardiovascular drugs, psychotropic drugs (ones that act on the mind) and anti-inflammatory drugs. They found that 52.6 percent of all people age 65 or older were given one or more prescription for a high-risk drug. Thus, more than twice as many older adults were the victims of high-risk prescribing when the two additional categories were added. ✦

This article summarizes the reasons why Public Citizen's Health Research Group devotes such a large proportion of its time to drug safety issues, warning you about the worst pills, safer alternatives and potential adverse interactions between drugs.

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