

Why are the elderly often overdosed?

Medication problems are most common among elderly patients. One reason is that the elderly are often prescribed medication doses that are too high, leading to more adverse drug reactions. Another explanation is their high use of medications. The Centers for Disease Control and Prevention estimate that almost 94 percent of those ages 75 to 84 received a prescription medication in 2004.

The use of multiple medications increases the risk of drug interactions, which in turn may cause adverse drug reactions (Chapter 32). In addition, older subjects have a reduced ability to break down and excrete medications, which can lead to their accumulation in the body. Finally, older patients also may respond more strongly to medications than younger adults.



Which biological effects of aging contribute to overdosing?

There are several such factors. Advanced age is the most common cause of reduced kidney function. A healthy 80-year-old's kidney function is half that of a healthy 40-year-old. Moreover, an 80-year-old with medical illnesses is likely to have a lower kidney function than a healthy 80-year-old. As a result, the body's ability to excrete medications or their breakdown products is reduced, which can cause adverse drug reactions. Thus, to compensate for age-related changes of kidney function, elderly patients should be given lower medication doses. In fact, some medications even ought to be avoided.

Liver function also is reduced. The size and blood flow of the liver are reduced with increasing age, and some enzyme systems responsible for the breakdown of medications are less effective. This is yet another reason for medications to remain in the body longer and to cause adverse reactions.

The body composition also changes with age. Elderly people have less water and muscle mass and more adipose tissue than younger people. These changes contribute to an accumulation of fat-soluble medications in the body.

Another aging change is the reduction in receptor cells, which leads to increased sensitivity to certain medications and an increased risk of adverse drug reactions.

In summary, the normal aging changes described above are important to consider and are the reason why recommended doses of medications should be reduced when treating elderly patients.

Why is it so easy to misinterpret adverse drug reactions in the elderly?

One issue with elderly patients is that their adverse drug reactions often mimic symptoms associated with medical conditions or the aging process. As a consequence, the dose of the medication causing the symptom may be increased rather than decreased.

Drowsiness and fatigue are common adverse reactions among elderly subjects, but they also may be signs of aging. The use of many medications may lead to modest losses of memory, and confusion in more severe cases – symptoms that also could be expressions of aging. A careful review of the causes for hospital admission in a group of 40 elderly patients showed that the main reason was drug-induced adverse effects in more than one-third.

Older persons often suffer from dizziness, instability, and even loss of consciousness. The underlying cause could be a drop in blood pressure while standing. Many medications may lower the blood pressure further and increase the risks of falls, which could cause fractures.

Reduced mobility and stiffness are other symptoms associated with aging, but these also may be adverse drug effects. Other symptoms commonly occurring with increasing age include dry mouth and severe constipation, but they may also be medication-induced.



Key messages

- ✓ The elderly often take many medications, which increases the risk of medication interactions and adverse drug reactions.
- ✓ The body's ability to break down and excrete medications diminishes markedly with age.
- ✓ Many adverse drug reactions are similar to symptoms of aging.
- ✓ Elderly patients should be given lower drug doses than younger adults.