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Senior Series
A partnership between Ohio State University Extension and Ohio Aging Network professionals

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Aging Increases Risk for Problems With Medicines

As we grow older, we become more sensitive to medications and may experience side effects. Reasons for this include:

- **Increased risk of lifelong illness**. Older adults are more likely than any other age group to have one or more illnesses, including heart disease, high blood pressure, diabetes (high blood sugar), and arthritis. With some illnesses, the body may not be able to move medications out of the body as fast as it should.
- **More than one drug**. Because 30 percent of medications are for people over 60 years of age, it is not unusual for an older person to be taking five or more medications sometimes several times per day. The more medications a person takes increases the risk for problems with other medications, food, or alcohol. Risk of side effects increases with each new drug.
- **Complex dosage schedules**. When more than one drug is taken at different times each day, dosage schedules can often be complicated. This complication increases the risk of making a mistake, such as, taking a dose twice or forgetting to take a drug when prescribed.
- **Types of medications**. Older adults are more likely to be taking medications that have greater potential for causing side effects. These medications include heart medicines, water pills, blood

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pressure pills, blood thinners, and medicines for depression.

- **Age-related changes**. With age, there are certain changes in the body that can affect the way medications interact with the body. Normal aging can alter the way medications are absorbed, broken down, moved around, and removed from the body.

Physical Changes that Affect How Medications Act

- **Increase in Percentage of Body Fat**

  As a person ages, the ratio of lean body mass to body fat tissue changes. Although total weight may remain the same, the percentage of body fat increases.

  Result: Medications distributed in fat have a broader and longer distribution. In other words, some medications may remain in the system for a longer period of time.

- **Decrease in Body Fluid**

  The percentage of body weight consisting of water decreases as one ages.

  Result: Medications may become more highly concentrated, making the drug work too strongly in the body. Reducing the medication dosage can prevent this problem.

- **Decrease in Action of the Gastrointestinal Tract**

  As we grow older, the emptying of the stomach slows down and food moves through the intestines at a slower rate.

  Result: The action of a drug may be decreased or delayed. Usually this change does not present a significant problem.

- **Decrease in Liver Function**

  As one ages, the liver decreases in size, blood flow to the liver decreases, and enzymes (in the liver) that break down medications decline.

  Result: Medications can collect in the liver, causing toxicity. Reducing dosage can prevent this problem.

- **Decrease in Kidney Function**

  Similar to the liver, changes in kidney function occur as we age. The kidneys often become smaller, blood flow to the kidneys decreases, and our kidneys become less effective at getting rid of toxins. Some illnesses such as heart failure, anemia (low number of red blood cells), or dehydration (not enough water in the body) may also contribute to impaired kidney function.

  Result: Medications are filtered through the kidney more slowly; therefore, these medications may remain in the kidney for longer periods of time.

Summary

In general, older adults should approach medications differently than younger patients.

- Taking many medications at different times increases the chance of making a mistake. Older adults who are taking more than one drug may consider using pill reminders such as daily or weekly pill dispensers or color-coded regimens to assist them with taking their drug as prescribed.
- Age-related changes in the body can lead to greater drug sensitivity and side effects. Seniors need to practice caution and pay close attention to the types and amounts of medications they take. Asking specific questions of one's physician AND pharmacist can help to reduce the chance of unnecessary drug reactions.
- Due to these age-related changes, the action of a drug may be less predictable than it is in a younger or middle-aged person. Therefore, the standard adult dose of some medications may be altered or even reduced.

Risk of side effects increases with each additional drug.

Revised by Dr. Bella Mehta, PharmD (August 2007).

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