

Elderly diabetes patients on insulin most vulnerable to low-blood-sugar trouble

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Study found they were more than twice as likely to end up in ER, five times more likely to be hospitalized.

(HealthDay)—A new look at diabetes patients in the United States who use insulin and wind up in the emergency room with low blood sugar shows the dangerous scenario is more than twice as likely to happen to those over 80 years old.

Not only that, elderly diabetes patients are five times more likely to be hospitalized than younger patients as a result of the [low-blood-sugar](#) episode, the study found.

"Managing [insulin](#) can be a complex endeavor," said study author Dr. Andrew Geller, a medical officer at the U.S. Centers for Disease Control and Prevention. "We knew it would cause a lot of emergency-

department visits for adverse events, but we didn't expect the full severity of these events. Almost two-thirds involved things like passing out and seizures."

In an editorial accompanying the study, Dr. Sei Lee stressed that the problem of low [blood sugar](#)—also called hypoglycemia—in the older population is serious.

"Hypoglycemia is more prevalent in older adults, but we don't have strong data to say why this is happening," said Lee, an associate professor in the division of geriatrics at the University of California, San Francisco. "For those seniors living independently, vision gets worse with increasing age, and arthritis and fine motor control may [make] injecting insulin more difficult.

"For those with [mental] impairment, they may have difficulty verbalizing to their caregivers that something is wrong when they have hypoglycemia symptoms," Lee said.

Insulin is a naturally occurring hormone that helps the body's cells turn sugar from food into energy. People with type 1 diabetes produce little or no insulin, and must take [insulin injections](#) or receive insulin through a pump and a tiny tube placed under the skin, according to the CDC.

People with type 2 diabetes still produce insulin, but it isn't used efficiently by the body's cells. Many people with type 2 diabetes also take at least some replacement insulin, the CDC said.

It is a tricky balancing act, however, Geller said. People who use insulin have to closely match their insulin dose to how much food they're eating, as well as their physical activity and other factors during the day.

Too little insulin, and blood sugar levels run too high. Over time, [high](#)

[blood sugar](#) levels put people at risk of serious complications, such as heart disease, kidney disease and eye problems, according to the CDC.

Too much insulin can also be dangerous, causing low blood sugar levels. Mild low blood sugar can cause symptoms such as irritability, hunger, shakiness and sweating, according to the JDRF (formerly the Juvenile Diabetes Research Foundation). As low blood sugar progresses, it can cause people to faint and have seizures. Severe low blood sugar can even result in death.

Treating low blood sugar levels is usually simple, however. Juice, soda, sugary candy, saltines and other simple carbohydrates can raise [blood sugar levels](#) quickly.

The problem is that some people's bodies stop alerting them to impending low blood sugar (called hypoglycemia unawareness), or a dangerous drop in low blood sugar can occur while someone is sleeping. Another problem is that once someone's blood sugar is low, they may not be able to treat themselves. When the blood sugar is low, the brain doesn't get the fuel it needs to operate properly, and this causes confusion and other odd behaviors.

For people with severe low blood sugar, an injectable hormone called glucagon can be given.

During the past 10 years, the number of people who are treated with insulin for either type of diabetes has risen by 50 percent, according to background information included in the study.

To measure what effect the increasing use of insulin has had on the number of serious low-blood-sugar events, Geller and his colleagues reviewed national data on emergency room cases and insulin use.

Based on the 8,100 insulin-related emergency-room events they found, they were able to estimate that just less than 98,000 emergency-room visits occur in the United States each year due to insulin-related low blood sugar.

Almost 30 percent of those emergency-room visits resulted in hospitalization, according to the study.

Severe neurological complications were present in 61 percent of the emergency-room visits, according to the study. Examples of these include altered mental status, passing out and seizures.

The most common causes of low blood sugar were reduced food intake and the use of the wrong type of insulin. (Many people take both a long-acting and a short-acting insulin, and mixing up the two can result in low blood sugar.)

"Patients should continue taking their insulin as directed, but this study points to an opportunity to improve how safely insulin can be used," Geller said. "For patients, planning meals around insulin dosing is one of the most important things they can do. For those that take more than one insulin, pay close attention to which product you're using. And be ready to treat the signs and symptoms of hypoglycemia with glucose tablets or juice."

Geller added that packaging solutions—perhaps changing the way the different insulins look or feel—might help increase safety.

Lee said the benefits of tight blood sugar management—such as decreased heart attacks or kidney disease—often take 10 years or more to become evident. Because of this, he recommends that most people over 80 with type 2 diabetes not be put on [insulin therapy](#).

"I'm not saying that no one over the age of 80 can benefit from insulin, but every doctor should think twice before they prescribe insulin for someone over 80 because more intensive glycemic control can lead to more hypoglycemia," he said.

It's important to note that people with type 1 diabetes must always take insulin, the researchers said. For people with type 2 diabetes, other medications may be available.

Results of the study were published online on March 10 in the journal *JAMA Internal Medicine*.

More information: Learn more about low blood sugar symptoms and treatments from the [JDRF](#).

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