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What You Need to Know About Latent Autoimmune Diabetes in Adults

Learn more about this often-misunderstood form of diabetes

By Barbara Brody

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For most of her life, Rachel Zinman thought of herself as fit and healthy. A yoga instructor and former professional dancer, Zinman was surprised when a routine blood test at age 42 revealed that her blood glucose was elevated. Her primary care doctor told her she had diabetes (she assumed **type 2**), handed her a few pamphlets, and sent her on her way.

Confused and in search of better guidance, Zinman sought out an endocrinologist, who said she actually had **prediabetes**. He urged her to avoid high-glycemic-index foods (which contain carbohydrates that cause blood glucose to spike), increase her

activity level, monitor her blood glucose, and come in for periodic **A1C** tests. Zinman followed her doctor's recommendations, but her blood glucose continued to climb.

In 2009, about a year after her prediabetes diagnosis, Zinman tested positive for GAD antibodies, which are present in autoimmune-related diabetes (typically **type 1**). Nevertheless, believing that her condition wasn't that severe, her endocrinologist simply urged her to continue focusing on diet and exercise.

Over the next few years, Zinman maintained a healthy lifestyle and continued getting regular A1C tests, but her efforts didn't seem to be paying off. Her endocrinologist eventually suggested she try an oral medication designed to regulate blood glucose, but Zinman—who says she's never even taken acetaminophen for a headache—was afraid to try the drug and never filled the prescription.

By 2014, however, Zinman could no longer deny that something was seriously wrong. Not only was she exhausted all the time, but she had lost a lot of weight and was constantly running to the bathroom. Even worse, she had developed tingling in her hands and feet, which prompted her to see a neurologist. The neurologist told her that she had mild nerve damage and that her A1C had reached 10.7 percent. She returned to her endocrinologist, who diagnosed her with an autoimmune form of diabetes known as LADA, or .

The Basics

As Zinman soon found out, LADA is notoriously tricky to diagnose, in part because it shares features with both type 1 and type 2 diabetes. (Some people informally refer to it as type 1.5.) In type 1 diabetes, the body's immune system mistakenly generates autoantibodies that attack and destroy the beta cells in the pancreas that are supposed to make insulin. The same happens in LADA.

Type 2, on the other hand, occurs when the body doesn't produce enough insulin or when it doesn't properly use the insulin it does produce (known as **insulin resistance**). While LADA doesn't involve insulin resistance, it's similar to type 2 diabetes in that it can be managed for periods of time without insulin.

Although there's no strict, agreed-upon definition of how to diagnose LADA, most doctors use it to describe an autoimmune form of diabetes that occurs when the beta cells slowly get destroyed. Early on, when many of the beta cells are still functioning, blood glucose can be managed with lifestyle changes and/or non-insulin medications. As the disease progresses and more beta cells get destroyed, LADA starts to more closely resemble type 1, and patients usually require insulin.

"LADA often masquerades as type 2 diabetes, given its adult onset and delayed need for insulin treatment," says Diana Cousminer, PhD, a research scientist at Children's Hospital of Philadelphia who led a recent genome-wide analysis to see how, genetically speaking, LADA compares with type 1 and type 2. Her study, published in 2018 in *Diabetes Care*, found that it has genetic signals that overlap with both, though it seems slightly closer to type 1.

According to a study of more than 6,000 people published in 2014 in *Diabetes Care*, as many as 10 percent of adults diagnosed with type 2 might actually have LADA. Other research suggests the incidence may be even higher, especially among those whose body weight is normal.

The Diagnosis

There's no universally accepted way to diagnose LADA, but most studies define it using three key criteria:

1. Diabetes that develops after age 30
2. Diabetes that is successfully treated with lifestyle changes and/or non-insulin diabetes meds for at least six months before insulin is required to manage blood glucose
3. Diabetes in which a person tests positive for autoantibodies that are typically associated with type 1

Antibodies are the defense squad your body's immune system calls forth to target harmful invaders such as bacteria and viruses. Sometimes, it mistakenly attacks your own body tissues by creating autoantibodies and activating other components of the immune system. This is what happens in autoimmune disorders such as type 1 diabetes.

People with type 1 usually have one or more specific autoantibodies in their bloodstream that attack normal organs. Those with LADA tend to have those same autoantibodies. But it's important to note that LADA is not the same thing as adult-onset type 1, says Marwan Hamaty, MD, MBA, an endocrinologist at the Cleveland Clinic. "If an adult has a frank manifestation of type 1 diabetes, it should simply be called type 1 diabetes, not LADA," he says. The key differences are that LADA develops slowly and symptoms tend to be subtle, especially in the beginning.

If you're an adult with an A1C of 6.5 or higher, most doctors will assume that you have type 2. Could it be LADA instead? If your weight is normal or you're losing weight for no apparent reason, it's possible.

Other clues that suggest you might have LADA include a family history of type 1 diabetes or another autoimmune disorder, no family history of type 2, and blood glucose levels that respond to lifestyle changes and/or non-insulin type 2 medication for a period of time before worsening.

If that sounds like you, ask your endocrinologist for a blood test to check for diabetes-related autoantibodies or to measure your levels of C-peptide, a substance that's released from the pancreas along with insulin. Low C-peptide levels indicate low insulin levels and often point to type 1 diabetes.

The Treatment

Your doctor says you have LADA. Now what?

Some people need to take insulin right away; others can go for years without it. When Zinman was diagnosed with LADA, she started taking a small amount of basal insulin each day. Four years later, in 2018, she added premeal bolus insulin. "I am still on very low doses of both, as my body still produces some insulin," says Zinman, who now blogs about living with diabetes and is the author of *Yoga for Diabetes*. Although determining her insulin needs can be tricky, she generally feels confident in her ability to manage her condition. Her A1C is now 5.8 percent.

Most people with LADA will eventually require insulin, says Anne Peters, MD, professor of medicine at the Keck School of Medicine of the University of Southern California and director of the USC Clinical Diabetes Program. The only way to find out what you need is to work closely with your health care provider, monitor your blood glucose at home, and get regular A1C tests. If you've been taking drugs commonly used for type 2 and they're still working well for you, then you can continue on that path until that's no longer the case.

"Unless you're really insulin deficient, the type of diabetes alone won't tell you which medication to use," says Peters, who doesn't like to use the term LADA because of the great variability among patients who don't have classic type 1 or type 2.

In other words, an insulin prescription isn't dependent on being told you have LADA or even the presence of autoantibodies in your blood. There are plenty of people with type 2 diabetes, who generally don't have autoantibodies, who take insulin to manage their blood glucose levels. Likewise, there are people with autoantibodies (including those who've been diagnosed with LADA) who do fine on non-insulin medications, though they may eventually need insulin. "My message is you can call it what you want," says Peters, "but you should treat it as a patient needs to be treated."

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