New hope for treating inflammatory diseases of the kidney

Novartis researchers aim to preserve kidney function – and quality of life – for patients.

By Maryse Jandrasits | Nov 23, 2020

At age 14, Gisela Delgado felt unwell. She thought she had the flu, but when she noticed blood in her urine, she rushed to the emergency room.[1]

Six months later, in 1994, she was diagnosed with IgA nephropathy (IgAN), a kidney disease in which the body's immune system attacks and slowly destroys the kidneys. There were no approved therapies for the disease. In the coming years, Delgado would lose weight and energy, and her quality of life would decline. Within 25 years, her doctors told her, her kidneys would probably fail.

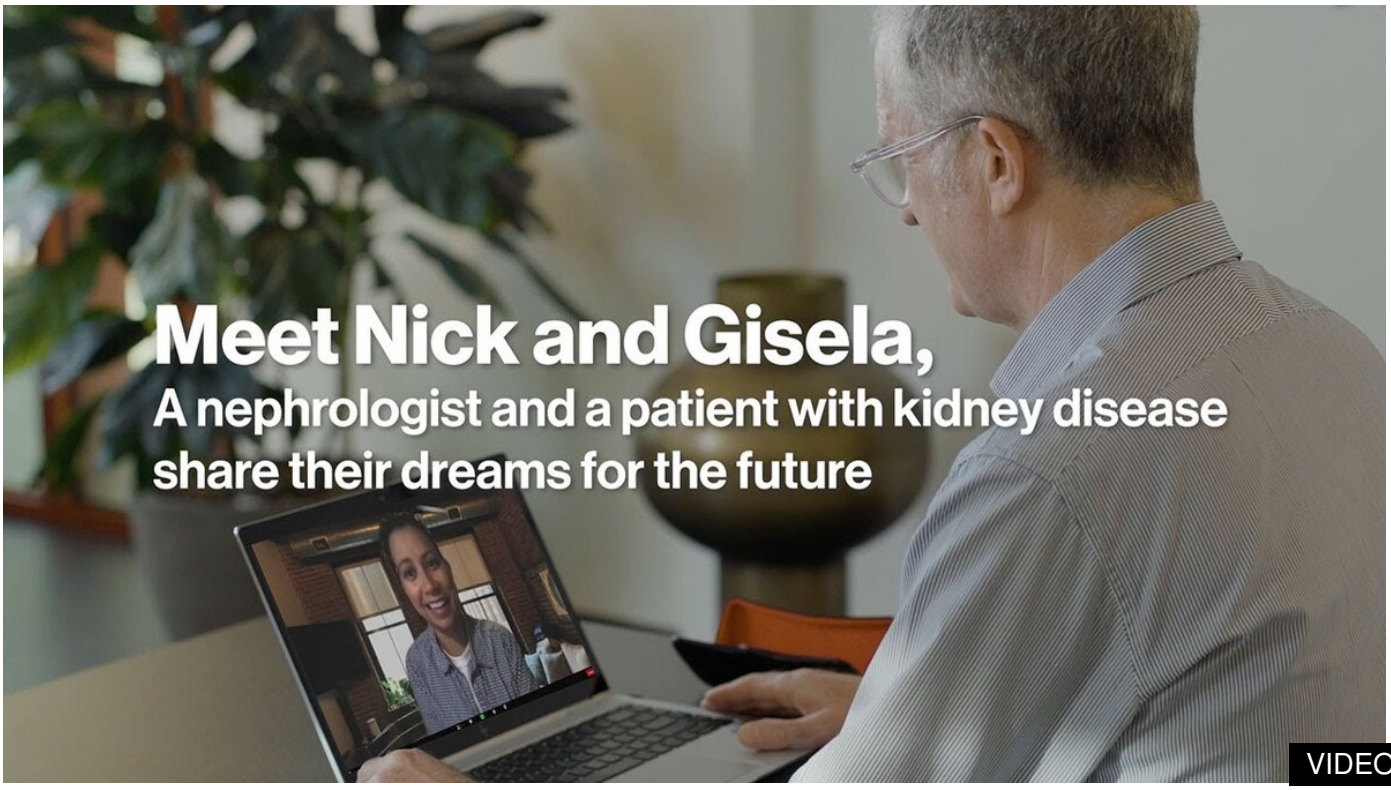
"It was my first year of high school. I was otherwise healthy," Delgado recalls. "I was thinking, 'What is this going to be like for the rest of my life?'"

Now, however, Novartis researchers are developing a medicine that could slow disease progression by intervening in the immune system's attacks on kidneys. The approach could keep kidneys functioning for a longer period of time, avoiding the need for extreme interventions such as kidney transplants, and potentially boosting patients' quality of life. The effort is part of a strategic focus at Novartis to build a range of effective, disease-altering medicines for a number of kidney diseases caused by inflammation.

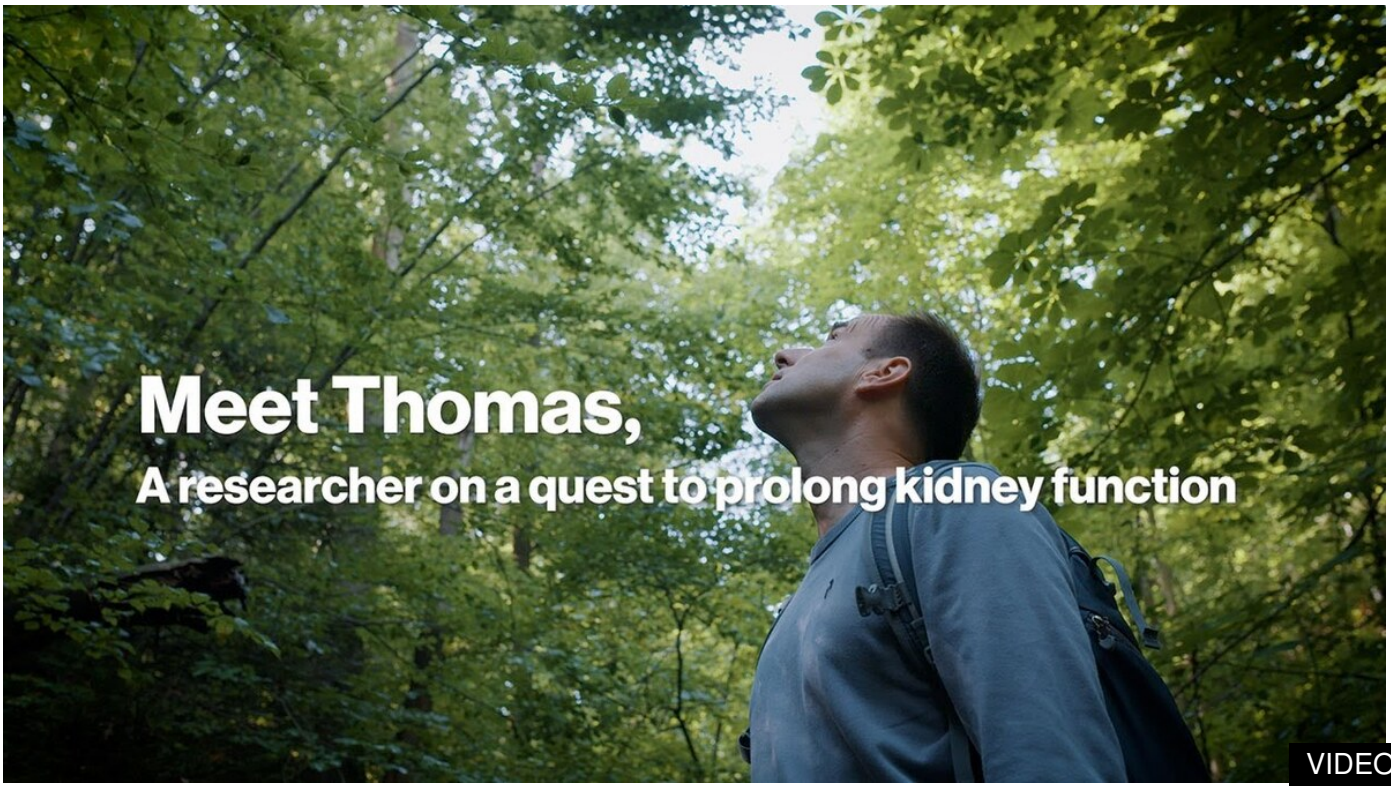
New hope for treating inflammatory diseases of the kidney


Meet Gisela,
A patient diagnosed with a rare kidney disease
VIDEO

Meet Gisela



Meet Nick & Gisela



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Meet Thomas

Delgado, now a 39-year-old director of creative operations living in New Jersey in the US, is one of 850 million people worldwide with kidney disease.[2] Most people with kidney diseases – particularly inflammatory diseases – have few treatment options. To survive, those with advanced diseases have two options: dialysis to mechanically filter the blood, or kidney transplantation.

“Many of these are particularly aggressive diseases,” says Nicholas Webb, a Senior Clinical Development Medical Director in Cardiovascular, Renal and Metabolism (CRM) at Novartis. “We are keen to find a solution.”

A battery is losing power

The kidneys are the body’s blood filtration system. They help get rid of waste and toxic substances, which they discard through urine. In patients with inflammatory kidney diseases, the kidneys become inflamed and scarred, and continuously lose function.

“I like to compare my kidneys with a battery. They are going to die, but there is still some juice,” Delgado says.

There are no approved targeted treatments that can prevent the disease from progressing to kidney failure. Physicians often prescribe steroids, which calm down the overall immune system to reduce inflammation. With this approach, however, patients become more susceptible to infections. Steroids may also cause serious side effects, such as thinning of the skin, water retention, bone loss and depression.

Inflammatory kidney diseases often affect young people in the prime of life. A large number of these patients progress to kidney failure within only 10 years of being diagnosed.

Many of these patients must undergo dialysis several times a week. When the kidneys can’t do their job, a machine filters and purifies the blood. This technique requires significant time and effort, and is exhausting. Some patients have to give up their education, job or hobbies.

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>
> **Gisela Delgado**, kidney patient

When Delgado reached her late 30s, her kidneys worsened to the point where she could no longer go to work. She was constantly tired and could not eat or sleep. That changed in February 2019, when she received a kidney transplant. “It felt like having been super thirsty and then someone gives you an ice-cold sports drink,” she says. “You wouldn’t realize how much the kidneys impact your energy levels.”

In around 13% of transplant patients, however, IgAN returns after five years. 5% of patients lose their new kidney as a result of disease relapse.[3]

“The crucial question is, ’How can we gain time for these patients and delay, or ideally prevent, the need for dialysis or transplant?’” says Thomas Holbro, who serves as a Global Program Head in CRM at Novartis, and is leading the development of a potential treatment for a number of inflammatory kidney diseases.

Calming an out-of-control immune system

Holbro and his team are developing an investigational treatment that has the potential to postpone kidney failure. The therapy aims to reduce inflammation and slow or prevent damage that causes scarring. Unlike steroids, this investigational therapy only calms down the specific part of the immune system that is out of control. As a result, the rest of the body’s natural defense mechanism stays strong enough to fight infections.

“Our hope is that we could help patients reach the natural end of their life with a properly functioning kidney,” says Holbro.

The investigational medicine will also be evaluated for the potential to help alleviate symptoms like fatigue. Further testing in clinical trials is required to establish the safety and efficacy of this approach.

The team is running clinical trials for a number of rare inflammatory kidney diseases, including IgAN, C3 glomerulopathy (C3G), atypical hemolytic uremic syndrome (aHUS) and membranous nephropathy (iMN), as well as a blood disease called paroxysmal nocturnal hemoglobinuria (PNH).

“In the past there hasn’t been a lot of innovation in the field of kidney disease, but it is changing,” says Marty Lefkowitz, a Clinical Development Head in CRM at Novartis. “We are understanding these diseases better and better, and I hope we can soon make a difference for patients.”

Main image of Gisela Delgado by Jordan Beard.

References:

1. Gisela Delgado does not participate in a Novartis clinical trial.
2. **http://www.era-edta.org/press/180626_Prevalence_Data_Project.pdf**
3. **https://pubmed.ncbi.nlm.nih.gov/15156532/#:~:text=Recurrence%20of%20the%20original%20disease,to%2060%25%20of%20the%20patients**

Novartis researchers are developing a treatment that could postpone #kidneyfailure.

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