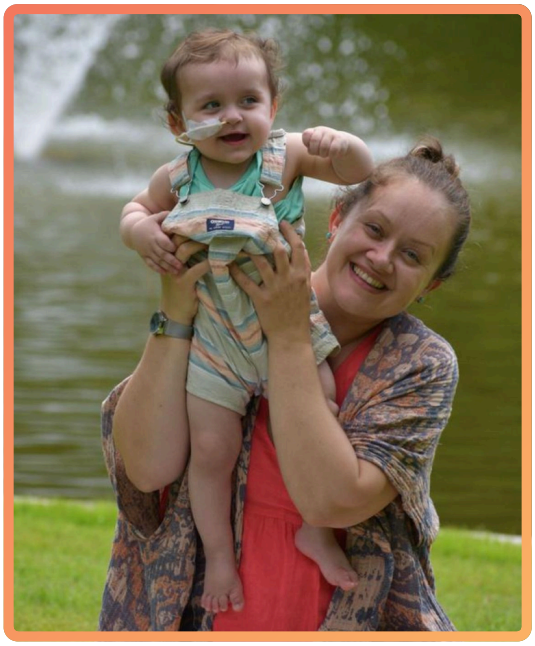
Kate Vinokurov & The CureOTCD Foundation

Ornithine transcarbamylase deficiency (OTCD) is a rare, X-linked genetic condition that affects the body's ability to process ammonia, a byproduct of protein breakdown. Without proper treatment, high levels of ammonia can quickly accumulate, manifest as a variety of symptoms, and, in severe cases, lead to brain damage, coma, and even death. Kate Vinokurov created the CureOTCD Foundation to help those affected by this rare condition, shortly after her son's diagnosis.



Affecting as few as 1 in 80,000 individuals, the rarity of OTCD occurrence and lack of widespread screening presents significant challenges for families like Kate's, who often face delayed diagnosis and limited treatment options.

"In Canada, we do not screen for this condition," Kate explains. "Early intervention is very important, it really has a great impact [on] the brain and development. Some have even passed away without ever knowing they had OTCD."

The condition can strike at any age. At present, there is no cure for OTCD; treatment is focused on symptom management with medication and a very restrictive diet. Liver transplant is another treatment option which comes with its own challenges and life-long immunosuppression. "Children with OTCD are on a very limited protein diet, they have to consume metabolic formula around the clock," Kate says. "My son has an NG feeding tube. I'm always on high alert because a hyperammonemic episode - an acute crisis or decompensation - can happen at any time.

Forging a Path with Research and Collaboration

Determined to change the trajectory for these patients, the CureOTCD foundation assembled a Scientific Advisory Board of experts from around the world

and established partnerships to advance the understanding of OTCD and explore potential therapies.

Kate explains. "We're collaborating on a drug repurposing project with the Precision Medicine Research Institute at the University of Alabama, looking at FDA-approved drugs that could potentially be used to increase the OTC enzyme in the liver, to provide a cure."

In addition to the drug repurposing initiative, CureOTCD is also exploring stem cell therapy and other cutting-edge approaches. The organization has bio-banked cells from Kate and her son at SickKids Hospital in Toronto, as part of the Rare Disease Study. Kate hopes more patients from the OTCD community choose to bank their cells and participate in research, providing a valuable resource for researchers to study the condition and the various mutations, and test potential treatments.

A focus on the genotype-phenotype connection

Variability in presentation and severity is a hallmark of OTCD, with over 500 different genetic variants identified. The variant-phenotype connection is a major focus for CureOTCD, as the therapeutic approach will hinge on the nature of dysfunction. For Kate's son, the specific variant c.77G>A (Arg26Gln) is thought to impact proper localization of the protein to the mitochondria, where the function is needed. Despite this, research has suggested that the 77G>A variant retains ~20% enzymatic activity. For other variants, Kate stated, "there may not be any OTC enzymatic activity at all, or less than 4%, so you may have more severe outcomes, such as more frequent hyperammonemic episodes. Every mutation is so different, but clinically this is often overlooked."

The goal for CureOTCD is to create a patient registry that looks at the "whole patient." Per Kate, "Every person with this condition has a different phenotype, they present differently, they have different struggles." This registry initiative goes beyond data collection. Kate's goal is to make this registry truly patient-centric, "a patient-driven, patient-led registry that would look at both qualitative and quantitative data from patients, accessed by patients and managed by patients."

"CureOTCD has a threefold focus: fundraising, building awareness, and spearheading critical research to find a cure."

Building a Community of Strength

As Kate navigates the challenges of rare disease advocacy, she finds strength in the connections she's made within the OTCD community and the broader rare disease landscape. Collaborating with other patient groups and sharing stories has been a crucial part of her journey. "When my son was diagnosed... I felt devastated," Kate shared when describing her sense of isolation and uncertainty. Now, she's determined to change that for other families, to be more connected, to learn from each other, and to work together towards a common goal. "Everything that I'm doing with CureOTCD, and just also connecting to other rare disease groups and within our UCD urea cycle disorder community as well... It's because I have hope. I have hope for our patients, for our families and for my son."

cure otcd

View Kate's video and learn more about Etan's story

www.cureotcd.com/

gofundme.com/f/save-etan

Kate and CureOTCD thank their Scientific Advisory Board and the people who are so invested in the mission to find a cure, Dr Ljuba Caldovic and Dr Hiroki Morizono from Children's National Hospital; Dr Alexander Laemmle from Switzerland, the University Hospital of Bern; Dr Barbara Marriage; the University of Alabama Precision Medicine Institute; and Sick Kids Hospital in Toronto.

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