Montreal Phd Grad Wins National Award For AI Tool That Helps Predict, Prevent Strokes

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Karina Gasbarrino dedicated 10 years to researching strokes after her grandfather died of one

In honour of her grandfather who died from a stroke more than 10 years ago, Karina Gasbarrino has spent the last decade creating an artifical intelligence tool that improves early prediction and prevention of strokes. (Submitted by Karina Gasbarrino)

It's been a challenging 10 years, but Karina Gasbarrino's goal of improving patients's lives is finally being realized.

The McGill University PhD graduate has dedicated her career to enhancing the early prediction and prevention of strokes, and she created a tool that uses artificial intelligence (AI) that does just that. This week, her work won her the Mitacs Social Entrepreneurship Award, a national innovation award presented to an applicant whose start-up works to address or solve social, cultural or humanitarian issues. Gasbarrino said this recognition means a lot to her, as she chose to delve into this kind of research based on a personal experience.

"It really started off because we have a family history of cardiovascular disease," Gasbarrino said. "*I ended up losing my grandfather over 10 years ago due to a stroke."*


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"*It was really instantaneous, like one minute he was here, the next he was not. And so that really impacted me and my family and it gave me the drive to want to go into research and really understand what causes these strokes and how we could better predict and prevent them."*

Gasbarrino is the co-founder and COO of digital health start-up PLAKK, a software which uses image analysis technology to more accurately examine harmful fatty deposits in the arteries of the neck, called plaques, which, when ruptured, are the main cause of strokes.

"What we're trying to do with our technology is provide clinicians with more information about those plaques ...

and by understanding that, we can better determine whether a patient is at risk of having a stroke," she said.
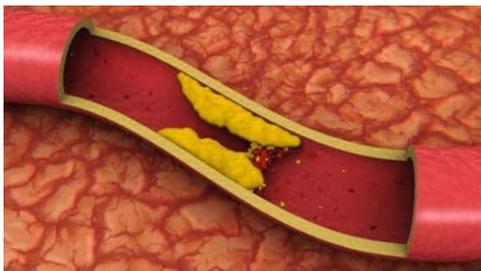
According to Gasbarrino, as it stands, there is no blood test that can used to detect plaques in the neck artery. Imaging is required, but even then, there's no tool to determine what that plaque is composed of or how dangerous it is.

Harmful fatty deposits in the arteries of the neck, called plaques, are the main cause of strokes when ruptured. ((iStock photo))

"*That's why we're developing the technology,*" she said. "*We want to be able to intervene and get patients the treatment that they need before they end up having a stroke.*"

The tool is currently in the validation phase and the team is working to get regulatory approval in the coming six months. The hope is to have the technology implemented in a few centres across Canada as well as some in the U.S. by early 2023.

Gasbarrino said the development of this technology would not have been possible without the support of her PhD supervisor, Dr. Stella S. Daskalopoulou, a clinician-scientist at the Montreal University Health Centre, as well as Kashif Khan, another recent PhD graduate from McGill University involved in the project.

Karina Gasbarrino received the Mitacs Social Entrepreneurship Award for PLAKK, which used deep learning to helps to detect people's likelihood of suffering a stroke. Gasbarrino said her team has spoken with more than 50 vascular surgeons and radiologists from around the world who are "really excited" about where the tool is heading.

"*It can help potentially save lives in the future and help identify those patients that were originally missed in the current practice that we have right now,*" she said.
Gasbarrino said she knows her grandfather would be "extremely proud" of the work she's done to try and spare other families the same kind of hurt she faced at the hands of the disease.
"*I just wish that he could have been here today to see all of this happen.*"