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# New hope for treating epilepsy developed after traumatic brain injury

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Published Thursday, May 16, 2019 2:03PM EDT

Last Updated Thursday, May 16, 2019 6:07PM EDT

Epilepsy stemming from a traumatic brain injury (TBI) is a problem that affects tens of thousands of Canadians and one that's been hard to treat.

More than one million Canadians live with a traumatic brain injury.

Dr. Michael Poulter, a professor at Western University's Schulich School of Medicine and Dentistry, explains, "In people who have a moderate traumatic brain injury as opposed to a concussion, which is a mild one, they stand about a 15-20 per cent chance in their lifetime," of developing epilepsy.

## PHOTOS



Dr. Michael Poulter works at his lab at Western University's Schulich School of Medicine and Dentistry in London, Ont. on Thursday, May 16, 2019. (Celine Moreau / CTV London)

Poulter says that number rises when mental health is taken into account, "If you layer stress on top of that then your chances of developing epilepsy go up quite a bit."

He says what adds to the problem is that stress-induced seizures after a traumatic brain injury are some of the hardest to treat because in many cases they are drug resistant

"Thirty per cent of all the people who have epilepsy it is untreatable and a big chunk of that 30 per cent is from TBI."

With that in mind Poulter and his research team examined electrical activity in the brain to try to find out why this form of epilepsy is so difficult to treat.

In order to conduct the study the research team used rodent models that had traumatic brain injuries. When the animals experiences stressful situations all developed epilepsy.

But there was something in common in all the models - a molecule called CRF.

"In the epileptic brain or TBI brain it changes polarity and it's activity it flips and makes things worse [rather] than better," Poulter says.

However, when drugs were used to block CRF activity, the electrical and seizure activity stopped.

The research team plans to use this new discovery to find ways to block CRF in these patients, with the hopes that for the first time ever it will be possible to treat these types of seizures.

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