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Researchers Link Huntington Depression to Genetics

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(PhysOrg.com) -- The depression experienced by people with Huntington disease (HD) may have nothing to do with the emotional stress of knowing you have a devastating, incurable disorder, according to a University of British Columbia study published in the journal *Brain*.

Using mice models, UBC researchers have discovered that depression in people with HD is caused by a mutant huntingtin protein responsible for HD. The team found that mice with HD show depression symptoms when this protein is compromised. When researchers repaired the protein, the mice showed no symptoms of depression.

“The depression experienced by people with Huntington disease has long been assumed to be a social reaction to knowing you had something incurable, or knowing the disorder runs in your family,” says lead author Mahmoud Pouladi, a PhD candidate in UBC’s Centre for Molecular Medicine and Therapeutics (CMMT). “Our research suggests this depression is a part of the disease’s neurobiology.”

The study also explored the effectiveness of antidepressant drugs on mice with HD. It found that tricyclic and SSRI antidepressants - the two most common antidepressants, both commonly prescribed to treat depression in people with HD - were ineffective at reducing depressive behaviour in mice models.

The study is one of the first to explore the causes of the emotional disturbances related to HD, says Pouladi, a medical genetics student of

UBC's Dr. Michael Hayden, Canada Research Chair in Human Genetics and Molecular Medicine and Director and Senior Scientist at the CMMT at the Child and Family Research Institute. Recent studies suggest as many as 50 per cent of people with HD experience depression, and that the depression can occur long before the manifestation of motor symptoms.

This finding builds on the ground-breaking work of Dr. Hayden, who in 2006 showed that HD could be prevented in mice with the HD mutation. Hayden and colleagues discovered that by preventing the cleavage of the mutant huntingtin protein responsible for Huntington disease in a mouse model, the degenerative physical symptoms underlying the illness do not appear and the mouse displays normal brain function.

Hayden's team is now trying to test this model of prevention in a mouse using drug inhibitors, and then ultimately in humans.

Huntington disease is a degenerative brain disease that affects one in every 10,000 Canadians. The disease results from degeneration of neurons in certain areas of the brain causing uncontrolled movements, loss of intellectual faculties, and emotional disturbances. Currently, there is no treatment to delay or prevent HD in patients.

More information: To view Pouladi's study, visit: brain.oxfordjournals.org/cgi/c … ntent/full/132/4/919

Provided by University of British Columbia (news : web)