Diabetes drug alleviates anxiety in mice

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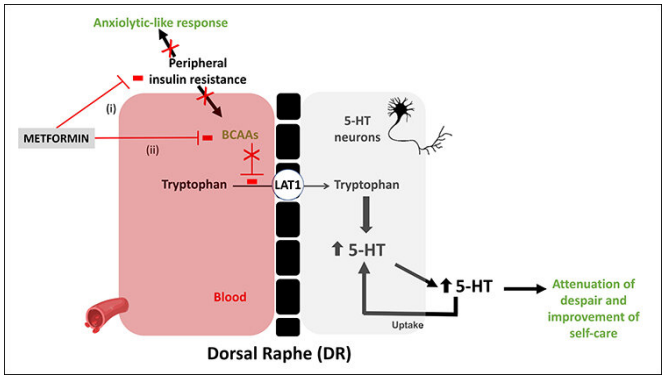

Model underpinning the effects of metformin on depressive symptoms in mice fed a HFD. Credit: Zemdegs et al., JNeurosci (2019)

The antidiabetic medication metformin reduces anxiety-like behaviors in male mice by increasing serotonin availability in the brain, according to a study published in *JNeurosci*. These findings could have implications for the treatment of patients with both metabolic and mental disorders.

People with diabetes have an increased risk for mood disorders such as depression. Although the mechanisms underlying the relationship between insulin resistance—the precursor to diabetes—and depression are not known, studies suggest the neurotransmitter serotonin may be the culprit.

In mice raised on a high fat diet, Bruno Guiard and colleagues demonstrate that the insulin-sensitizing drug metformin reduces levels of amino acids that impair the entry of tryptophan in the brain and thereby limit its conversion into serotonin. The drug's antidepressant-like effects were accompanied by improved neurotransmission in the hippocampus.

The researchers achieved similar effects by reducing the amount of so-called branched chained amino acids in the diet.

More information: Metformin promotes anxiolytic and antidepressant-like responses in insulin-resistant mice by decreasing circulating branched-chain amino acids , *JNeurosci* (2019). DOI: 10.1523/JNEUROSCI.2904-18.2019

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