

Gut hormone can increase the risk of cardiovascular disease

February 7 2020



Martin Magnusson. Credit: Kennet Ruona

A new epidemiological study from Lund University and Skåne University Hospital in Sweden shows that there is a connection between high levels of the gastrointestinal hormone GIP in the blood, and an elevated risk of cardiovascular disease.

It is well known that the intestinal hormones GIP and GLP-1 are important for insulin production in the pancreas. They form in the intestines as we eat, and regulate the body's insulin production, nutrient uptake, appetite and energy use. This has made them important therapeutic targets for treating high [blood](#) sugar in patients with type 2 diabetes.

Treatment with drugs that stimulate the release of GLP-1 has, in addition to lowering [blood sugar](#), also been shown to be protective against cardiovascular [disease](#).

"However, more and more studies are indicating that GIP, or direct stimulation of the GIP receptor can, on the contrary, have negative cardiovascular effects and lead to cardiovascular disease," says Martin Magnusson.

In a recently published epidemiological prospective study, researchers have used data and [blood samples](#) from two large population studies—the Malmö Diet Cancer Study in Sweden and the Botnia Study in Finland—to study the association between GIP and GLP-1 levels and prognosis for cardiovascular disease and [premature death](#).

The study included 8051 people, and about 5 percent of them had

diabetes.

"The results show that physiologically high levels of GIP were associated with a 30 percent increased risk of death due to cardiovascular disease, and a 20 percent increased risk of premature death in general; compared to those who did not have high GIP levels," says Martin Magnusson, senior consultant in cardiology at Skåne University Hospital, associate professor of cardiovascular disease at Lund University, and Clinical Fellow at Wallenberg Center for Molecular Medicine (WCMM).

Mendelian randomization analysis also showed that genetically elevated GIP was associated with cardiovascular disease, suggesting that there may be a causal relationship. However, GLP-1 levels were not significantly associated with mortality or cardiovascular disease.

Magnus Martinsson emphasizes that the findings are very interesting, but should at present be viewed as a way of generating hypotheses. Even though the results indicate that there could be a causal link between GIP levels and [cardiovascular disease](#), much remains to be investigated.

"Since only a fraction of the individuals in our study had diabetes, we do not know how GIP levels are associated with mortality in a larger diabetic population. This is something we plan to investigate within the framework of a new research project. As many diabetes patients are treated with drugs that indirectly raise GIP levels in the blood, it is important to perform these additional studies to find out what is behind our epidemiological findings," concludes Martin Magnusson.

More information: Amra Jujić et al. Glucose-dependent insulinotropic peptide and risk of cardiovascular events and mortality: a prospective study, *Diabetologia* (2020). [DOI: 10.1007/s00125-020-05093-9](https://doi.org/10.1007/s00125-020-05093-9)

Provided by Lund University

Citation: Gut hormone can increase the risk of cardiovascular disease (2020, February 7)
retrieved 25 March 2023 from <https://medicalxpress.com/news/2020-02-gut-hormone-cardiovascular-disease.html>

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