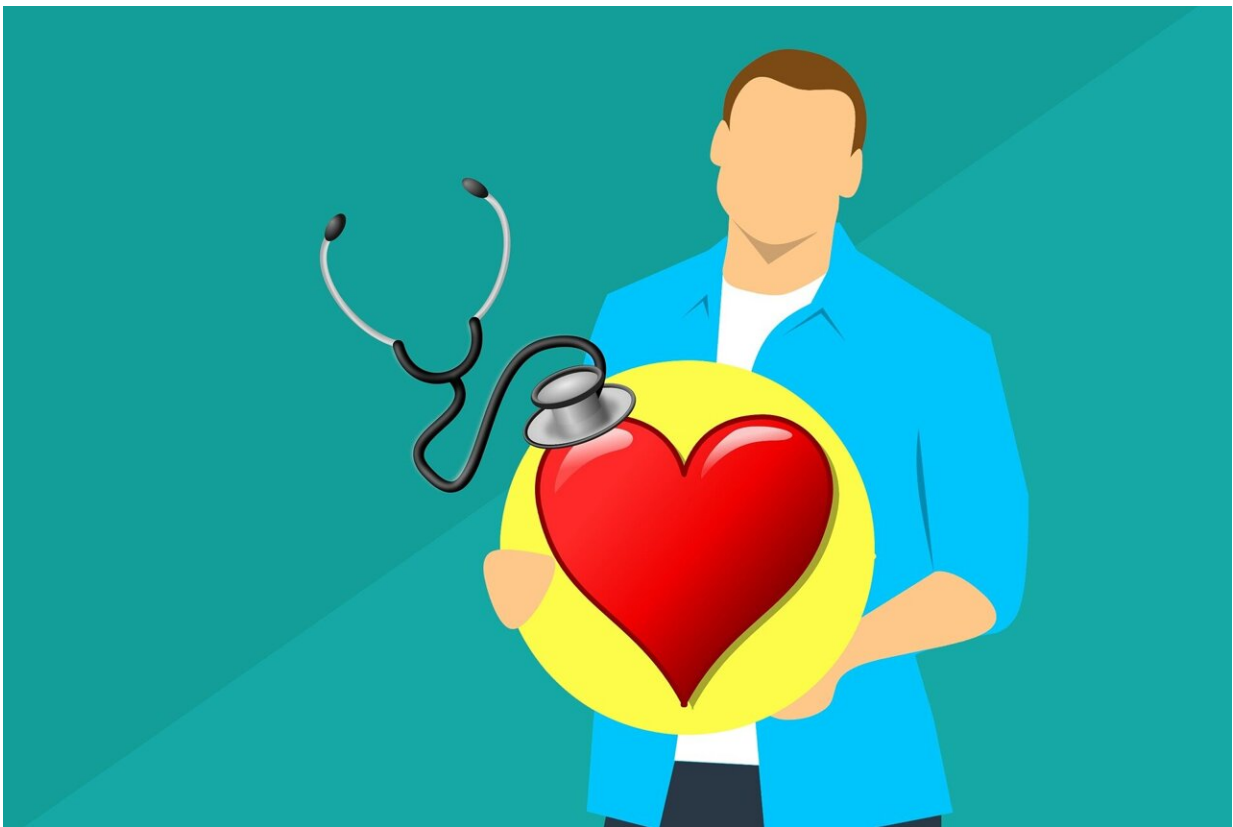


Increased risk of heart disease may be linked to your stress hormone sensitivity

September 27 2021



Credit: Pixabay/CC0 Public Domain

People that are particularly sensitive to stress hormones also exhibit markers that suggest they are at greater risk of developing cardiovascular disease, according to research presented at the [59th Annual European](#)

[Society for Paediatric Endocrinology Meeting](#). The study aimed to create a test that could differentiate between stress hormone sensitive and resistant people, to help clinicians better determine therapeutic outcomes and minimize adverse effects in those requiring glucocorticoid treatment. Interestingly, the protein profile associated with glucocorticoid sensitivity included increased risk markers of stress-related disorders such as stroke and heart attack, and may point to new possibilities for diagnostics or therapy in these areas.

Glucocorticoids (GCs) are a group of hormones produced naturally in the body, one of which is the stress hormone cortisol, and they are essential for metabolism and healthy immune function. They act as anti-inflammatories and are routinely used to treat allergies, asthma and other conditions involving an overactive immune system. However, people respond differently to GCs. A test distinguishing between sensitive and resistant people would be very useful in improving treatment outcomes. Proteins in our body are responsible for recognizing, transporting and effecting the actions of hormones such as GCs, so it may be that the protein profiles of sensitive and resistant people could indicate GC effectiveness. Chronic stress has long been associated with an [increased risk](#) of developing heart disease and stroke but the underlying physiological changes are not well understood.

In this study, Dr. Nicolas Nicolaides and colleagues in Athens, Greece, investigated whether a set of proteins could be identified that would distinguish between GC sensitive and resistant people. 101 healthy volunteers were given a low dose of the GC, dexamethasone, then ranked from the most sensitive to most resistant, based on their blood cortisol levels the following morning. Samples from the top and bottom 10% were then analyzed using liquid chromatography mass spectrometry to identify differences in the [protein](#) profile between these groups. The sensitive group had 110 upregulated and 66 downregulated proteins compared with the resistant group. Of the upregulated proteins in the

sensitive group, several were associated with enhanced blood clotting, amyloid plaque formation in Alzheimer's disease and immune function.

Dr. Nicolaides says, "Our findings show, for the first time, how increased [glucocorticoid](#) sensitivity may be associated with stress-related disorders, including myocardial and brain infarctions, which could lead to new therapeutic interventions. This was a small, study, so further, larger studies are needed to confirm the differences observed between the glucocorticoid-sensitive and resistant people."

This [study](#) was part of a larger project, involving genetic and metabolic analyzes in healthy subjects with differences in tissue sensitivity to glucocorticoids. The team now plan to perform larger studies to confirm these findings and develop a signature profile for identifying these patient groups, which may also have increased susceptibility to stress-related disorders.

Dr. Nicolaides says, "We speculate that if the most glucocorticoid sensitive people are exposed to excessive or prolonged stress, the resultant increased blood cell activation could predispose them to clot formation in the heart and brain, leading to heart attacks or strokes. We could potentially identify those at more risk and in need of [stress](#) management."

More information: Nicolas C. Nicolaides et al, Plasma Proteomics in Healthy Subjects with Differences in Tissue Glucocorticoid Sensitivity Identifies a Novel Proteomic Signature, abstracts.eurospe.org/hrp/0094/hrp0094p1-106

Provided by European Society for Paediatric Endocrinology

Citation: Increased risk of heart disease may be linked to your stress hormone sensitivity (2021, September 27) retrieved 2 May 2024 from <https://medicalxpress.com/news/2021-09-heart-disease-linked-stress-hormone.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.