Protein can save the heart after cancer

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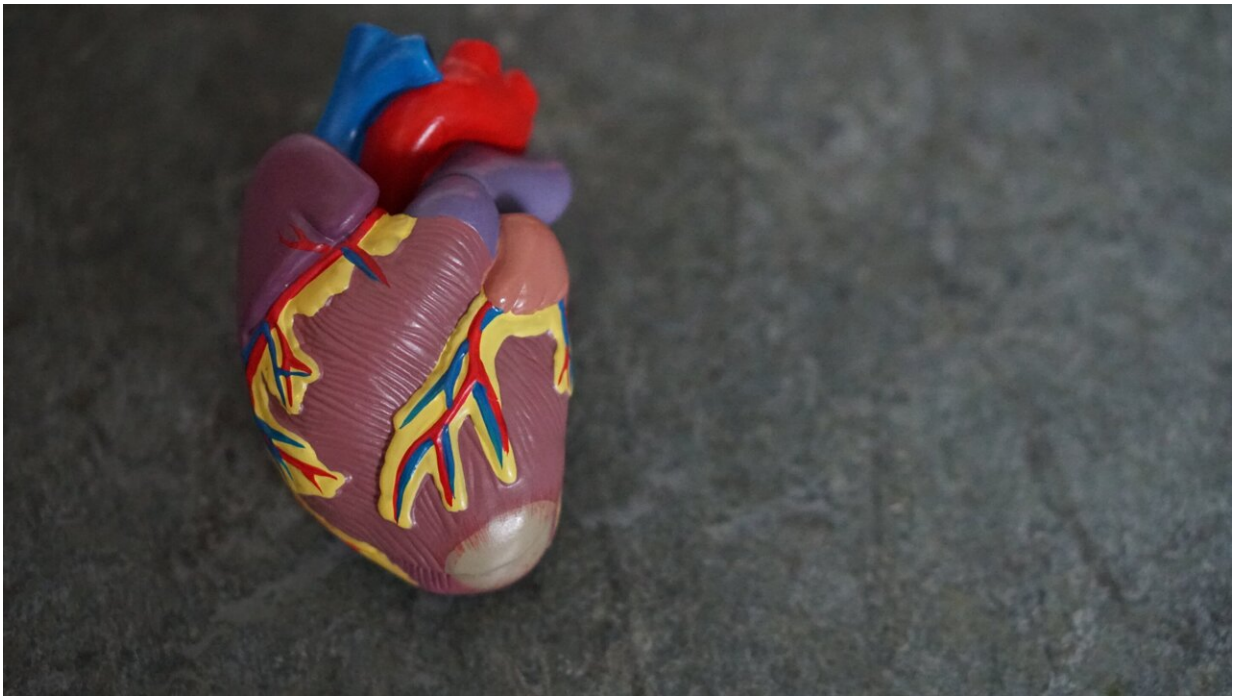

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Cancer treatment can be tough on the body, but for the patient to survive the cancer, it's often necessary to go through with the treatment anyway.

Some medications are effective against cancer, but one serious possible side effect is that they may trigger heart damage afterwards.

There's currently no method to reduce the risk of this side effect. But

that may soon no longer be the case.

"We've observed that the NOR-1 protein can provide broad protection against heart damage following cancer treatment," says researcher Morten Høydal at the Norwegian University of Science and Technology's (NTNU) Department of Circulation and Imaging.He also heads the Group of Cellular and Molecular Cardiology (GMC). Their findings have been published in *Biomedicines*

Protein is triggered by exercise

One of the cancer treatment methods that can increase the risk of heart damage is the cytotoxic drug Doxorubicin, or DOX. This cytotoxin can also attack healthy cells, including those in the heart, which in turn can have very negative effects.

However, the protein "Neuron-derived orphan receptor 1," or NOR-1, has previously been shown to be effective when a patient suffers from hypoxia, or oxygen deficiency. Administering NOR-1 can help ensure that more cells survive.

This protein is found naturally in the body and is triggered when we exercise. Exercise is important to reduce the risk of heart problems, but now it appears that directly supplying the protein can also reduce heart risk—at least in the laboratory.

Tested on cells

The research group used various methods to test the effect of the protein on human cells under laboratory conditions."These experiments showed that fewer cells died and instead stayed healthy," says Høydal.

NOR-1 appears to counteract some of the negative effects on cells that DOX can lead to, including in the heart."Our findings show that NOR-1 can protect the heart after this type of cancer treatment, says Høydal.

For the time being, this is still in the laboratory stage, and further research is needed. But the results so far are promising.

More information: Per-Christian Berg et al, Overexpression of Neuron-Derived Orphan Receptor 1 (NOR-1) Rescues Cardiomyocytes from Cell Death and Improves Viability after Doxorubicin Induced Stress, *Biomedicines* (2021). DOI: 10.3390/biomedicines9091233

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