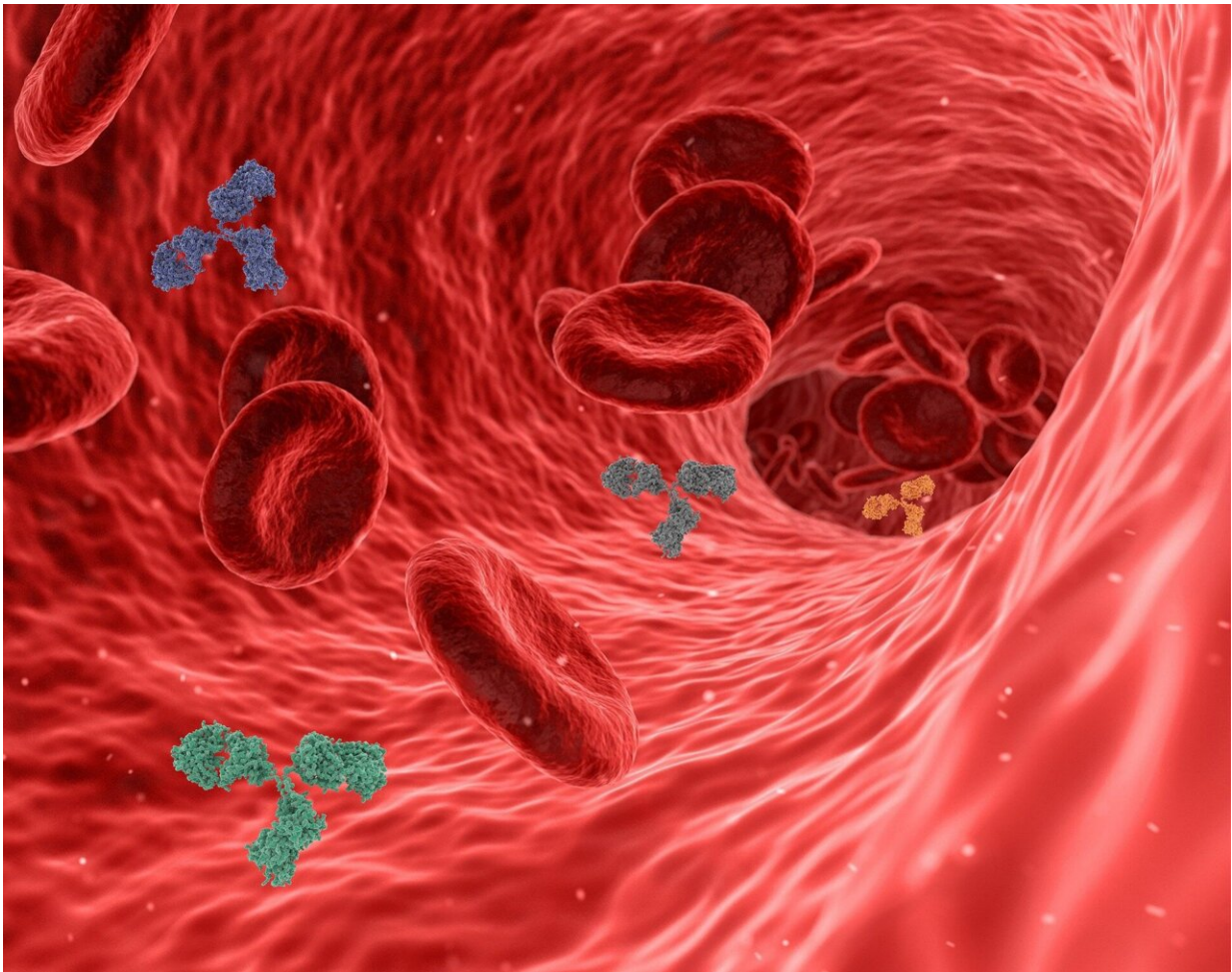


Researchers report clear shift in arterial diseases in diabetes

March 28 2024



Credit: Pixabay/CC0 Public Domain

There has been a redistribution in the risk of arterial disease in type 1 and 2 diabetes. The risks of heart attack and stroke have decreased significantly, while complications in more peripheral vessels have increased in relative importance, according to studies at the University of Gothenburg.

It is well known that type 1 and 2 [diabetes](#) increase the risk of heart attack and stroke. Previous research has also identified the clearest cardiometabolic risk factors in this context, such as obesity, lipid disorders, and [high blood pressure](#).

How diabetes and cardiometabolic risk factors affect blood vessels outside central organs, such as the heart and brain, in more peripheral vessels has not been examined to such an extent. However, these risks have now been studied in two articles published in *The Lancet Regional Health—Europe*.

The researchers studied two decades of [disease](#) trends for virtually all peripheral arterial diseases in terms of long-term trends, control of modifiable risk factors, optimal levels for cardiometabolic risk factors, and the relative importance of selected risk factors.

Fewer complications over time

The studies include data on 34,263 individuals with type 1 diabetes and 655,250 individuals with type 2 diabetes from the Swedish National Diabetes Register between 2001 and 2020. For comparison, register data on 2,676,227 individuals without diabetes from the general population was also included.

Based on hundreds of statistical analyses, various complications in blood vessels outside the central organs have been investigated: carotid artery calcification and similar, hernia of the carotid artery, rupture of the

inner wall of the carotid artery, calcification of the abdominal aorta and peripheral blood vessels in the lower extremities, and small vessel disease in the feet.

With some exceptions, these complications in type 1 and 2 diabetes have decreased over time. In relative terms, however, there has been a gradual shift in risk from arterial diseases in the central organs, such as heart attack and stroke, toward complications in peripheral vessels.

The benefits of closer checks

The results show great potential in terms of modifiable risk factors in type 1 diabetes. With closer checks on long-term blood sugar and blood pressure, the risk of several peripheral arterial complications can be reduced by 30–50%. These complications include carotid artery calcification, calcification of the abdominal aorta and peripheral vessels in the lower extremities, and small vessel disease in the feet.

However, patients with type 1 diabetes have very little to gain from lowering the current guideline values for cardiometabolic risk factors such as BMI, cholesterol and triglyceride levels, or improved renal function.

For type 2 diabetes, the analyses show that so-called bad cholesterol plays a major role in carotid artery calcification, and that lower levels of triglycerides significantly reduce the risk of peripheral arterial disease. However, being above the current guideline value for triglycerides, rather than at the guideline value, does not increase the risk.

Long-term blood sugar is crucial

In both type 1 and type 2 diabetes, long-term blood sugar appears to be

by far the most important marker for peripheral arterial disease, which clearly differs from central arterial disease. At the same time, elevated long-term blood sugar appears to reinforce the aorta and significantly reduce the risk of hernia and rupture of the inner wall of the artery. The studies highlight the differences

that long-term blood sugar exerts on all blood vessels in the body, as well as important differences between central and peripheral arteries.

Aidin Rawshani is a researcher at the Department of Molecular and Clinical Medicine at the University of Gothenburg's Sahlgrenska Academy and a [resident physician](#) in cardiology and [internal medicine](#) at Sahlgrenska University Hospital Östra, and is responsible for the studies:

"Our results reveal the potential for an even greater risk reduction for future events by maintaining lower levels of cardiometabolic risk factors, particularly early and intensive control of long-term blood sugar," he explains.

"We also noted that the relative importance of these risk factors differs between the central and peripheral arteries, revealing differences in biological effects that [cardiometabolic risk factors](#) exert in different parts of the arterial tree. Long-term blood sugar plays a much more significant role in the development of peripheral arterial disease."

More information: Araz Rawshani et al, Non-coronary peripheral arterial complications in people with type 2 diabetes: a Swedish retrospective cohort study, *The Lancet Regional Health - Europe* (2024). [DOI: 10.1016/j.lanepe.2024.100888](https://doi.org/10.1016/j.lanepe.2024.100888)

Tarik Avdic et al, Non-coronary arterial outcomes in people with type 1 diabetes mellitus: a Swedish retrospective cohort study, *The Lancet Regional Health - Europe* (2024). [DOI: 10.1016/j.lanepe.2024.100852](https://doi.org/10.1016/j.lanepe.2024.100852)

Provided by University of Gothenburg

Citation: Researchers report clear shift in arterial diseases in diabetes (2024, March 28) retrieved 28 April 2024 from

<https://medicalxpress.com/news/2024-03-shift-arterial-diseases-diabetes.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.