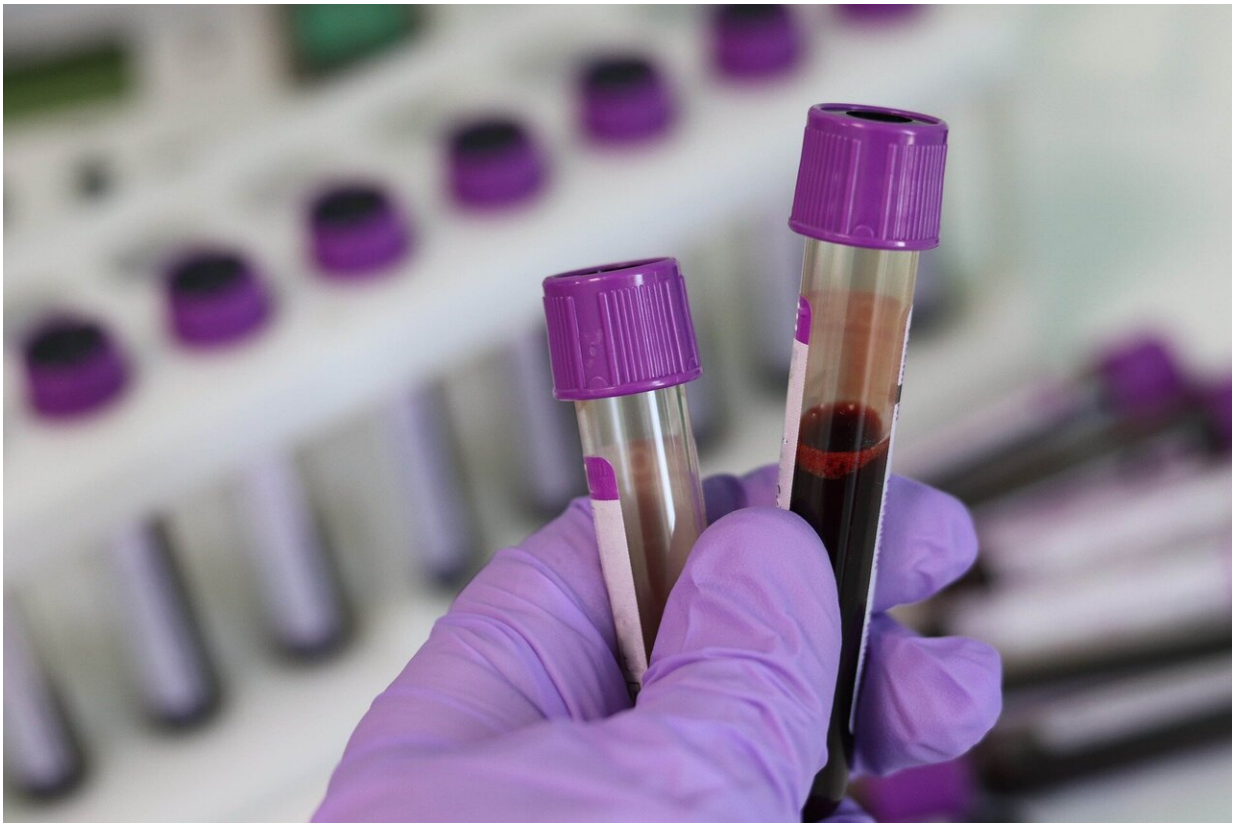


Simple blood test could help reduce heart disease deaths

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Scientists at Newcastle University have revealed how a simple blood test could be used to help identify cardiovascular ageing and the risk of heart disease.

For the first time, experts led by Professor Konstantinos Stellos report that higher levels of amyloid-beta in the blood may be a key indicator of cardiovascular [disease](#).

It is hoped that this research will one day lead to the development of a [simple blood test](#) that could be used as a clinical biomarker to identify patients who are most at risk, so that preventative measures can be put in place and [death rates](#) reduced.

Key role of amyloid-beta

Amyloid-beta is known to be involved in the development of Alzheimer's disease, yet scientists have now concluded that it may have a key role to play in vascular stiffening, thickening of the arteries, [heart failure](#) and [heart](#) disease progression.

The work, published today in the *Journal of the American College of Cardiology*, proposes the existence of a common link between both conditions, which has not been acknowledged before, and could lead to better [patient care](#).

The findings suggest that the higher the level of amyloid-beta in the blood the higher the risk of developing serious heart complications.

Professor Stellos, from Newcastle University's Biosciences Institute, UK, who also works as a consultant cardiologist at Newcastle Hospitals NHS Foundation Trust, led a series of international studies over the last few years, which involved experts from countries such as Greece, Germany, Switzerland and the USA.

He said: "Our work has created and put all the pieces of the puzzle together. For the first time, we have provided evidence of the involvement of amyloid-beta in early and later stages of cardiovascular

disease.

"What is really exciting is that we were able to reproduce these unexpected, clinically meaningful findings in patients from around the world. In all cases, we observed that amyloid-beta is a biomarker of cardiovascular ageing and of cardiovascular disease prognosis."

Global health problem

Cardiovascular disease is the number one cause of death around the world, taking almost 18 million lives each year. It includes [coronary heart disease](#), heart attack, heart failure and other conditions.

Professor Stellos' Group, in collaboration with several international scientists, analysed [blood samples](#) from more than 6,600 patients from multiple cohort studies in nine countries, and found that patients could be divided into high and low risk categories of heart disease based on their amyloid-beta levels.

In the future, it is hoped that a simple blood test could be added to the current method of patient screening, known as the GRACE score, which assesses heart attack risk and guides patients' treatment plans.

Using the GRACE score, eight factors are used to predict the risk of heart attack, including age, blood pressure, kidney function and elevated biomarkers.

Further research at Newcastle University will focus on clinical trials to establish the use of a bedside blood test in predicting risk of heart attack and/or death and look at the most effective ways to reduce amyloid-beta in the blood.

Professor Stellos said: "I am interested in knowing which of my patients

is at risk of death and/or recurrent heart attacks.

"Measuring amyloid-beta reclassified a large proportion of patients who had a [heart attack](#) in the correct risk categories over an established guideline-suggested risk score in independent clinical studies.

"If blood-based [amyloid-beta](#) predicts death in patients with heart disease, does it make a therapeutic target? Our next step is to investigate this."

More information: The Alzheimer's disease amyloid-beta hypothesis in cardiovascular aging and disease. Dimitrios A. Stakos, Kimon Stamatelopoulos, et al. *Journal of the American College of Cardiology*. DOI: [10.1016/j.jacc.2019.12.033](https://doi.org/10.1016/j.jacc.2019.12.033)

Provided by Newcastle University

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