

Blood tests pick up early 'silent' heart disease

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(Medical Xpress)—Scientists funded by the British Heart Foundation (BHF) at the University of Dundee have found that a combination of blood tests could effectively pick up 'silent' heart disease in thousands of people. (1)

The blood tests cost around £25 per patient, and are currently used to confirm heart disease in patients who have obvious symptoms. The new research, published in the Journal of the American College of Cardiology (JACC) (2), shows that using this combination of blood tests earlier could detect early heart disease before symptoms develop.

In the early stages of heart disease, there is low-level damage to the heart but no symptoms. If people with low-level [heart damage](#) could be identified before they develop symptoms, they could be given treatments to prevent future events such as a [heart attack](#) or sudden cardiac death. Despite being the UK's single biggest killer, the lack of early detection for most forms of heart disease means the first sign that a patient has a problem is often sudden cardiac death, even though silent heart disease can have been present for many years beforehand.

Between 40 and 50 per cent of people who have a sudden cardiac death die before ever being diagnosed with heart disease (3). [Sudden cardiac death](#) occurs when the heart stops beating (4).

The researchers looked at 300 people with high blood pressure or cholesterol. They used blood tests for two [molecules](#) released by the heart when damaged or under stress, called [high sensitivity troponin](#) and B-type natriuretic peptide (BNP). Both tests are currently used in the [diagnosis](#) of more obvious, developed heart disease.

Of the 300 participants in the study, 102 turned out to have silent heart disease. The researchers confirmed that patients with positive blood tests actually had silent heart disease by carrying out

heart scans in all 300 patients.

The next step for the Dundee researchers is to calculate which patients could benefit most from their blood tests for silent heart disease. As with any cost-effective screening programme, testing will only be appropriate for certain groups. For example, screening could be done for people with risk factors such as [high blood pressure](#) or [cholesterol](#), those with a family history of heart disease, or men over 50.

Professor Allan Struthers, Head of Cardiovascular and Diabetes Medicine at the University of Dundee, who led the study, said:

"Many people think of heart disease as something that happens suddenly, but the truth is that it often develops over years, or even decades. Yet despite being the UK's single biggest killer (5), the first sign someone has heart disease is often severe chest pain or sudden death".

"We've shown that a suite of already available blood tests could identify early but silent heart disease. This could one day propel screening for presymptomatic heart disease into the same league as screening for some cancers achieved long ago".

Professor Peter Weissberg, Medical Director at the British Heart Foundation (BHF), which funded the study, said: "This research puts the spotlight on the gap between preventative treatments for heart disease, and treatments given to people who have overt symptoms, when disease is already advanced. Treatments are given routinely to all people at high risk, but ideally we would like to be able to identify people with very early signs of heart disease - and treat them to prevent it from progressing."

"The study shows that a [blood test](#), coupled with a simple heart scan, may be able to identify these early signs of [heart disease](#). The next steps will be

to confirm how reliable the tests are, and show that early treatment of people who test positive can improve their outlook. This research is an important step in the right direction."

More information:

- Silent cardiac organ damage is a precursor to heart disease including coronary heart disease (CHD), the cause of heart attacks. Around 124,000 people each year have a heart attack.
- Nadir et al. Biomarkers and Silent Cardiac Target Organ Damage. JACC Vol. 60, No. 11, 2012. 2012:960-8. Published September 11 2012.
- de Vreede-Swagemakers JJ, Gorgels AP, Dubois-Arbouw WI, et al. Out-of-hospital cardiac arrest in the 1990s: a population-based study in the Maastricht area on incidence, characteristics and survival. J Am Coll Cardiol 1997;30:1500-5.
- Sudden cardiac death occurs as a result of a cardiac arrest - when the heart stops beating. The most common cause of cardiac arrest is a heart attack, but there are also other causes including abnormal heart rhythms called arrhythmias.
- Scarborough P et al (2010). Coronary heart disease statistics 2010 edition. British Heart Foundation: London.

Provided by University of Dundee

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