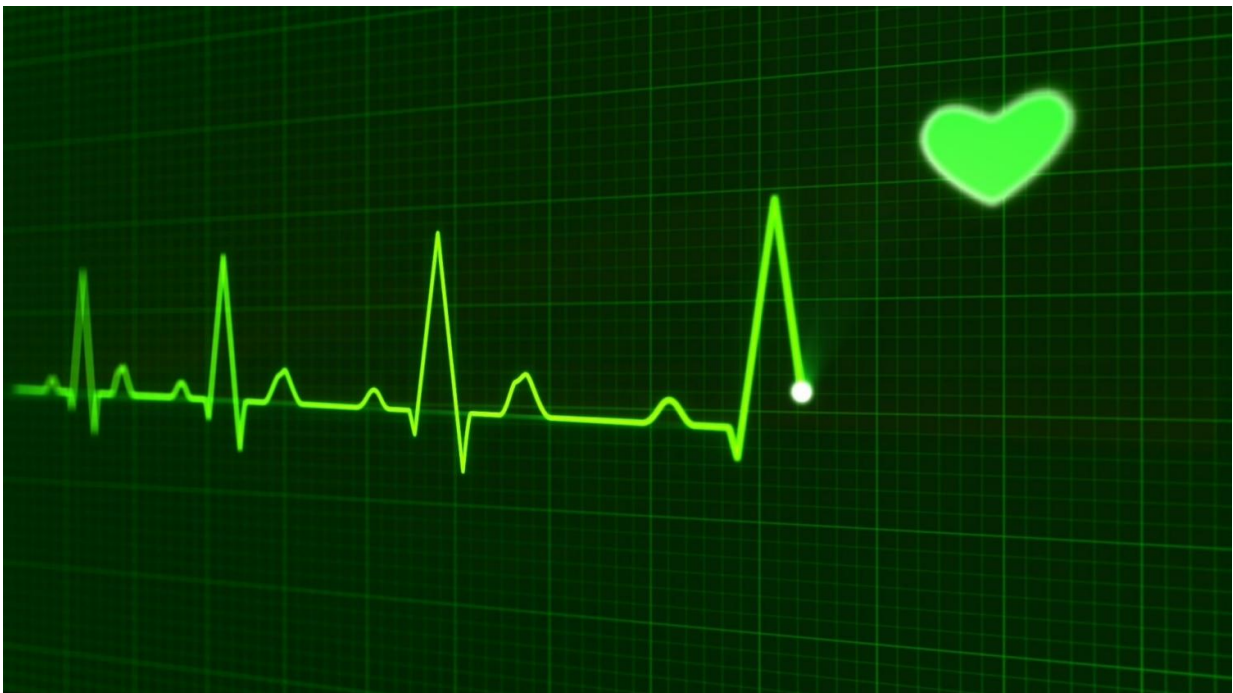


Non-invasive diagnostic procedures for suspected CHD: Search reveals informative evidence

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The German Institute for Quality and Efficiency in Health Care (IQWiG) used an evidence map to investigate to what extent informative evidence exists on the benefit and harm of the diagnostic procedures 'non-invasive computed tomography angiography' (CTA) and 'stress

MRI' in people with suspected coronary heart disease (CHD).

Focused searches provided extensive and informative evidence for the diagnosis of CHD using non-invasive procedures: Randomized controlled trials (RCTs) and evidence-based guidelines contain suitable data on the advantages and disadvantages of both procedures.

Coronary heart disease: leading cause of death in adults

Coronary heart disease (CHD) is the most frequent cause of death in adulthood in Germany, both in men and women: Plaques in the coronary vessels (arteriosclerosis) lead to narrowing of blood vessels (stenosis) and thus to reduced [blood flow](#) in the heart muscle (myocardial ischaemia). Typical symptoms are pain and tightness in the chest with difficulties breathing (angina pectoris).

However, symptoms of chronic CHD can also be atypical. An accurate diagnosis is therefore essential for the proper care of patients with CHD. Which diagnostic procedure is used in the individual case depends mainly on the individual risk of CHD—depending on age, sex, symptoms, intolerances—as well as on the risks of the procedure applied (e.g. radiation exposure for CT), the devices available, and the on-site expertise.

Detection of stenosis or its consequences

Various imaging techniques can be applied to detect chronic CHD: In addition to invasive coronary angiography (ICA) using left heart catheters, some non-invasive methods, such as computed tomography angiography (CTA) or stress tests using magnetic resonance imaging (MRI), are available. ICA and CTA are morphological procedures and

although they directly detect stenosis, they do not necessarily indicate ischaemia. CTA is currently the only available non-invasive morphological procedure for the diagnosis of CHD.

In contrast, functional diagnostic procedures such as non-invasive stress MRI investigate the consequences of stenosis for the blood flow in the heart muscle: For instance, stress MRI examines how the [heart](#) functions under stimulated stress.

Systematic reviews based on RCTs and guidelines

The search for current systematic reviews identified 24 relevant reviews for the evidence map. Aggregated results for selected outcomes (all-cause mortality, [myocardial infarction](#), etc.) from 9 RCT-based systematic reviews were compared with the respective standard care (including non-invasive functional procedures). Although insufficient data (one systemic review) were available for stress MRI, this could change with the results of studies published in the meantime (since March 2020).

The results showed that myocardial infarctions occurred less frequently after a CTA-based diagnosis. It remains to be seen whether more effective treatment planning after a CTA plays a role here. However, an ICA was often still performed after a CTA, without the reasons for this being clear. After an MRI, fewer ICAs were performed. But the detailed evaluation and interpretation of these results was not a topic of the search for evidence; only a benefit assessment can investigate this issue

Three evidence-based guidelines, including the German National Health Care Guideline (NVL), unanimously recommend non-invasive procedures as the first test for the diagnosis of chronic CHD.

Procedure of report production

The present report was prepared in the form of a working paper within the framework of the general commission, which was awarded to IQWiG by the Federal Joint Committee (G-BA) in December 2004 in order to strengthen the Institute's scientific independence. This general commission enables IQWiG to select and investigate topics independently. In contrast to other report types, there are no deadlines for the publication of working papers. The working paper was sent to the G-BA on 2 June 2020.

An English summary of this working paper will be available soon. If you wish to be informed when it is published, please contact info@iqwig.de.

More information: www.iqwig.de/en/projects-resul...e-mapping.12797.html

Provided by Institute for Quality and Efficiency in Health Care

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