

Coronary CT Angiography

Indication

Coronary CT angiography is indicated in patients with moderate and low risk of ischemic heart disease with a stable heart rhythm, when monitoring patients after angioplasty, stent placement with new symptoms, or bypass imaging before planned reoperation.

In patients who have signs of acute coronary syndrome or a high risk of coronary artery disease (male, nicotine abuse, hypercholesterolemia), a selective coronarography is indicated, in which an intervention - angioplasty or stent placement - can also be performed. In some workplaces, coronary CT angiography is not performed in patients with severely calcified plaques (see calcium scores) that cause artifacts (blooming). Stents with a diameter of 3 mm or less are hard to assess and stent patency below 3 mm cannot be assessed at all.

Preparation

Patients come for the examination on an empty stomach because of the (albeit small) risk of an adverse reaction to the contrast medium. They must not drink coffee, black tea or other stimulants that increase the heart rate before the examination. Some patients need to be premedicated with beta-blockers to slow their heart rate. Just before the examination, nitrate, which contributes to the dilatation of the coronary arteries, is usually administered sublingually.

Hardware

High-end fast devices, at least 64 rows, are required to perform the examination. The main parameter is the time resolution per revolution (alternatively half-turn - usually a reconstruction from the half of the circle is enough), which is important for minimizing movement artifacts. An advantage is a two-piston pressure injector, which allows the administration of a contrast medium and saline (so-called saline chaser). What is essential for a quality examination is a good venous access (flow rate at least 3.5 ml / s, ideally 5-7 ml / s) and a well-trained and motivated radiological assistant.

Comparison with selective coronarography

The disadvantage of coronary CT angiography is that the examination, even with top instruments, has about 3 times lower spatial resolution than classical angiography (selective coronarography). The advantage, on the other hand, is that the examination is minimally invasive (cannula insertion only), cheaper, has a lower radiation exposure, the image is three-dimensional and the surrounding structures and heart can also be evaluated. In case of finding a significant stenosis on CTA, the best method of treatment can be considered in advance (pharmacological, intervention, surgical). It is also possible to measure the stenosis without projection bias and select the most suitable stent that covers not only the stenosis but also the entire plate.

Links

External links

- Atlas of Radiological Images – srdce (<http://atlas.mudr.org/Radiology-images-system-and-organ-Heart-76>)