



Eliminating risk factors of heart attack

A person's sex has no effect on increasing the risk of a major heart attack for patients with extensive coronary artery disease.

If a person has extensive obstructive coronary artery disease, either male or female, they are at increased risk of suffering a major cardiovascular event.



The likelihood of suffering a significant cardiovascular event, such as a heart attack, is significantly increased if a patient suffers from obstructive coronary artery disease (CAD). Now, a study by an international team of researchers, including KAIMRC's Mouaz Al-Mallah, has verified that a patient's sex has no influence on their risk of a major cardiovascular event if they are suffering from obstructive CAD.

CAD occurs when the arteries that supply blood to the heart become hardened and partially blocked by fat deposits known as plaques. The condition gradually worsens, and eventually the heart muscle no longer receives the blood needed to function effectively. This can lead to severe chest pain, blood clots, heart attacks and sometimes sudden death.

"Women tend to have more symptoms suggestive of CAD, including chest pain, chest heaviness or shortness of breath, but they appear to have a lower prevalence of obstructive CAD than men," says Al-Mallah. "We did not know if sex plays a role in the relation between coronary artery blockages and clinical outcomes, and so when the international CONFIRM [Coronary CT Angiography Evaluation for Clinical Outcomes: An International Multi-center] registry was set up we sought to clarify this issue."

In the first long-term study into sex-specific associations in CAD, the research team followed the progress of 5,632 male and female patients with CAD from the CONFIRM registry over a period of five years. The patients were regularly screened

to determine CAD extent using coronary computed tomography angiography: CT scanning of the main vessels supplying the heart. Those patients displaying 50% or more narrowing of a coronary vessel were classed as having obstructive CAD.

"We found that men were more likely to have obstructive CAD than women," says Al-Mallah. "However, there was no evidence that a person's sex played a role in increasing the chances of a major cardiovascular event if they suffered from obstructive CAD. For both men and women, the greater the extent of obstructive CAD, the higher the risk of suffering a severe heart episode."

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The researchers note that current methods for measuring the extent of CAD in the body must be improved. Further investigations are also needed to determine whether there are differences in plaque characteristics between the sexes that impact clinical outcomes.

Schulman-Marcus, J., o Hartaigh, B., Gransar, H., Lin, F., Valenti, V. *et al.* Sex-specific associations between coronary artery plaque extent and risk of major adverse cardiovascular events: The CONFIRM long-term registry. *JACC: Cardiovascular Imaging* 9, 364-372 (2016).