

High-risk, undertreated mystery heart attacks occurring more commonly in women

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Dr. Kevin Bainey led a study that found a mysterious type of heart attack known as MINOCA is more common and poses a higher risk than previously thought, especially for women. Credit: Ross Neitz

A whole new category of heart attack, not caused by obstructed arteries, is more common and higher risk—especially in women—than previously thought, according to a University of Alberta study.

"We followed roughly 36,000 [patients](#) within a 12-year interval and found that close to a surprising six per cent have a [heart](#) attack without any blockage in the arteries," said Kevin Bainey, a U of A interventional cardiologist who launched the study after seeing an increase in these mystery patients in his practice.

The umbrella term used to describe these heart attacks is "myocardial infarction with non-obstructive coronary arteries," or MINOCA.

"Historically, MINOCA has been seen as a benign condition, and patients are commonly sent home without any treatment or lifestyle advice," he explained. "Yet we found that after one year's time, five per cent of patients either had another heart

attack or died of a heart attack. This is striking, since patients with a plugged coronary artery have a nine per cent chance of a repeat attack or death within one year."

The study is the first in the world to look at MINOCA over a long term. Bainey said the condition includes a range of less-understood heart attack causes that have been largely treated as benign.

"Not only did we find that prognosis only worsens over time, after five years, 11 per cent of MINOCA patients were likely to die or have a second heart attack compared with 16 per cent of heart patients with blocked arteries," noted Bainey.

MINOCA patients were twice as likely to be female, according to the study.

"We found roughly 25 per cent of common [heart attack patients](#) are female, whereas 50 per cent of MINOCA patients are female," said Bainey, adding that it is not clear why this is the case.

"Traditionally, because we haven't seen plaque ruptures or blockages are not seen, physicians have tended to downplay the heart attack and provide limited information, and have sent patients home and told them not to worry," said Bainey. "However, many of the MINOCA causes that are known do respond to targeted therapies."

Yet the study showed that only 40 per cent of MINOCA patients are provided with suitable medications—for example, cholesterol-lowering drugs—that could potentially reduce the risk of a second heart attack or death.

"Patients need to know that this condition is real, it is associated with adverse outcomes and they need to probe their physicians for more information about the condition and ways to prevent a second heart attack, including making important lifestyle changes

like eating healthier and exercising," said Bainey.

"From a physician standpoint, there is no question that when we identify this condition, we need to be more vigilant about trying to investigate and pin down the cause."

Last year, the condition was recognized in guidelines by the European Society of Cardiology for major heart [attacks](#).

The study was published in the *International Journal of Cardiology* and funded through the Canadian VIGOUR Centre.

What is MINOCA?

Women are more susceptible to a group of [heart attack](#) causes not related to blocked [arteries](#), although it's not clear why, according to U of A interventional cardiologist Kevin Bainey.

Though researchers are still investigating potential causes, they have identified the following:

- a tiny rupture or tear in the artery, known as SCAD (spontaneous coronary artery disruption), that isn't visible without specialized equipment
- small amounts of plaque buildup and clot not visible during a coronary angiogram
- inflammation of the heart muscle
- stress-induced heart muscle dysfunction

More information: Kevin R. Bainey et al, Population-level incidence and outcomes of myocardial infarction with non-obstructive coronary arteries (MINOCA): Insights from the Alberta contemporary acute coronary syndrome patients invasive treatment strategies (COAPT) study, *International Journal of Cardiology* (2018). [DOI: 10.1016/j.ijcard.2018.04.004](#)

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