

## **Chest pain with normal angiography 'not benign'**

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Women with persistent chest pain despite normal coronary arteries are at increased risk of cardiovascular events, US researchers have discovered.

In this supposedly low-risk population, the combined risk of cardiovascular (CV) death, nonfatal myocardial infarction (MI), stroke and heart failure (HF) was almost twice that of women with neither coronary disease nor chest pain.

The researchers say: "Our results suggest that, contrary to popular belief, persistent chest pain in the absence of obstructive coronary artery disease (CAD) is not benign and is associated with adverse CV outcomes."

B Delia Johnson, from the University of Pittsburgh in Pennsylvania, and colleagues studied 673 Women's Ischemia Syndrome Evaluation (WISE) study participants with chest pain who were undergoing coronary angiography for suspected ischemia.

Of the 412 without obstructive CAD, 189 continued to experience episodes of chest pain for more than a year and 223 had complete resolution of symptoms after hospital discharge. The remaining 261 women had significant CAD.

During a median follow-up of 5.2 years beginning after the first year of study, 72 women died of any cause, 53 died of CV causes, 24 suffered a nonfatal MI, 44 were hospitalized for CHF, and 33 had a stroke.

Among the women with normal arteries, the projected 6-year rates of combined CV events were twice as high in those who experienced persistent chest pain compared with those whose chest pain resolved (20.5% vs 10.1%,  $p=0.03$ ).

"Those with persistent chest pain had more than three times the 6-year rate of nonfatal MI (5.3% vs 1.6%,  $p=0.11$ ), more than three times the rate of strokes (7.5% vs 2.0%,  $p=0.03$ ), twice the rate of

CHF events (7.5% vs 3.7%,  $p=0.38$ ), and 30% more CV deaths ( $p=0.73$ )," the researchers report.

They recommend: "Women with no obstructive CAD and chronic chest pain symptoms should likely undergo additional evaluations due to their relatively higher risk of adverse CV events.

"Moreover, these patients should be closely followed and monitored for the development of infarctions, strokes, and other vascular events rather than discharged from care as 'non-cardiac.'"

In an editorial accompanying the study in the European Heart Journal, Raffaele Bugiardini, from University Alma Mater of Bologna, Italy, says that the unequivocal take home message from this study is that non-specific chest pain, and a reasonably normal angiogram in women is "not synonymous with favorable outcome."

He added: "These findings do not fit with the notion that normal or near-coronary angiography implies benign prognosis and prompt renewed debate about the proper strategy for public health efforts targeting early atherosclerosis."