MedicalXpress

Psychological stress may increase risk for a serious cardiovascular event in women with heart disease

November 11 2019

The way women with heart disease respond to psychological stress puts them at increased risk for heart attacks and other cardiovascular events, yet the same doesn't appear to be true for men, according to preliminary research to be presented at the American Heart Association's Scientific Sessions 2019—November 16-18 in Philadelphia.

Stress is known to increase inflammation throughout the body, which may contribute to heart disease risk, as well as heart attacks and other major cardiovascular events.

Researchers measured changes in inflammatory biomarkers in blood that are associated with stress in 615 men and women (average age of 63, 25% women) with stable heart disease before and after a psychologically stressful activity. To induce stress, participants were given a short speech test including two minutes of preparation time and three minutes of speaking.

The known inflammatory biomarkers interleukin-6 (IL-6), monocyte chemoattractant protein-1 (MCP-1) and matrix metallopeptidase-9 (MMP-9) were measured in participants while they were at rest before the speech and then again 90 minutes after their speech to give the body time to produce and release inflammatory molecules into the circulatory system.

Researchers then tracked participants for a median follow-up of three years, during which time 82 participants (13%) either died, had heart attacks, were treated for unstable angina or had heart failure.

While there were no significant associations between inflammatory response to stress and risk of major cardiovascular events in the overall sample, there were sex-based interactions for some specific biomarkers, specifically:

- Each unit increase in the IL-6 biomarker in response to stress was associated with a 41% higher risk of major heart-related events among women, yet there was no increased risk for major cardiovascular events among men with increases in this biomarker.
- Each 10-unit increase in the MCP-1 biomarker in response to stress was associated with a 13% increase in risk of a major heart-related event among women only.

These findings align with prior research showing women with existing heart disease have distinct biological responses to stress that may increase their risk of major cardiovascular events compared to men.

"In clinical care, the role of psychosocial stress, or stress during daily life, is often under-recognized and has not yet been incorporated in cardiovascular risk prevention guidelines," said study author Samaah Sullivan, Ph.D., an instructor in epidemiology at Emory University's School of Public Health in Atlanta, Georgia. "We hope health professionals can advise patients with heart disease, particularly female patients, about the importance of reducing stress through suitable interventions or techniques and refer patients for appropriate mental health care and support."

Provided by American Heart Association