Depression Dramatically Raises Risk of Death From Heart Attack, Stroke

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Doctors have long noticed that depression dramatically increases the risk of cardiovascular disease and death after a heart attack, but for years they have been lacking the pieces of the puzzle that would explain why.

Now, researchers at Loyola University Health System in Maywood, Ill., may be on the verge of filling in key pieces of that puzzle. In a study just published, the researchers find that depressed patients have higher levels of inflammatory substances in their blood. Inflammation is the process by which the body responds to infections, injuries or stress.

The increased inflammation is caused by the nervous system's reaction to the daily stress of daily life and the stress caused by illnesses such as depression, which sets off a series of physiological and biochemical changes in the body that can over time damage the cardiovascular system, the researchers find.

"It's an insidious pathological change," said Dr. Angelos Halaris, lead researcher, professor of psychiatry and behavioral neurosciences and assistant dean for translational research at Loyola University Chicago Stritch School of Medicine. "The changes caused by the inflammation are like a slow-growing cancer that goes undetected because they cause no symptoms."

The study finds the inflammation, which the researchers identify by means of pro-inflammatory biomarkers in the blood, increases the risk of heart disease by changing the structure of the inner lining of blood

vessels. In addition, stress activates platelets, components of blood that are primarily responsible for clotting. The platelets, which have a tendency to group together and form clots, find their way to the endothelium, the delicate, thin layer of cells that line the interior walls of blood vessels.

The clots get lodged on the endothelium and in small clumps in the lining of the arteries. As the clots pile up, they form plaque, the study finds. Over time the growing plaque causes a condition called atherosclerosis, a narrowing or hardening of the arteries that eventually could cut off the flow of blood and cause a heart attack, stroke and death.

“Unfortunately, clots don’t have boundaries,” said Dr. Omer Iqbal, co-researcher and associate professor, pathology department, Stritch School of Medicine. “They can dislodge and travel to the vessels of the heart and cause a heart attack, and they can also reach the brain and cause strokes.”

Depression affects about 18 million adults, or about 9 percent of the U.S. population. Potentially hundreds of thousands of these individuals could be at heightened risk from developing heart disease due to their condition. The danger is that their conventional depression treatment may not be adequately addressing their underlying cardiovascular condition, the researchers emphasize.

“The body and the mind are closely connected, and they affect each other,” Halaris said. “We’ve found that even though patients’ depression gets better within six to eight weeks with treatment, it may take up to six months for the inflammation markers to return to normal. Patients may need to stay on medications longer until all of their biomarkers have returned to normal.”

A conclusion the paper strongly suggests is that all people with clinical

depression should be routinely screened and monitored for heart disease. This includes having their blood pressure, body mass index, thyroid and cholesterol and lipid levels checked and an electrocardiogram performed. The screenings could also include a stress test, if a medical problem is suspected.

“I have seen women in their early 20s, who were depressed, who already showed changes in inflammatory markers,” Halaris said. “It’s not something that you can say, ‘Well, I don't have to worry about it until I hit my 50s or 60s.’” Not so. I think we need to be consistently pro-active. Prevention is the key.”

Based on the results of the study, the Loyola researchers are hoping to develop routine screening tools to identify those suffering from depression who are at greater risk for developing heart disease, heart attacks and strokes.

“We hope to develop robust and non-invasive test diagnostic tests that will help us to detect the biomarker changes brought on by depression that we think pre-dispose certain depressed individuals to heart disease,” said John Piletz, co-investigator and researcher, psychiatry and behavioral neurosciences, Stritch School of Medicine. “We consider those early warning signs very important that may ultimately lead to heart disease.”

Treatments for depression in heart patients include antidepressant drugs, cognitive behavioral therapy, exercise and cardiac rehabilitation. Antidepressant drugs known as SSRIs have the duel benefit of treating depression and suppressing inflammatory processes that can cause heart disease, Halaris said.

The study was recently published in the *World Journal of Biological Psychiatry*, the widely read journal of the World Federation of Societies

of Biological Psychiatry. The organization is a non-profit, international organization composed of over 50 national societies of biological psychiatry, representing over 4,500 professionals.

Provided by Loyola University Health System