

Study finds higher complication rate after heart attack in people with autoimmune disease

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After a heart attack, people with an autoimmune disease were more likely to die, develop heart failure or have a second heart attack

compared to people without an autoimmune disease, according to new research published today in the *Journal of the American Heart Association*.

Autoimmune diseases, such as [rheumatoid arthritis](#), systemic lupus erythematosus and psoriasis, are known to increase risk of cardiovascular [disease](#), likely due to multiple factors. People with an autoimmune disease have a higher prevalence of traditional cardiovascular risk factors (such as [high blood pressure](#), Type 2 diabetes or [kidney disease](#)), in addition to aspects of autoimmune disease that are also linked to higher cardiovascular risk, such as [chronic inflammation](#), autoimmune antibodies and long-term use of steroid medications. A new study examined whether having an autoimmune disease, compared to not having one, affects a person's health status after a [heart attack](#).

"The evidence about the risk of adverse events after [heart](#) attack for people with [autoimmune disorders](#) is less robust than evidence for people without these disorders, and mainly from small or single-center studies," said Amgad Mentias, M.D., M.Sc., senior author of the study and an assistant professor of medicine at the Cleveland Clinic Lerner College of Medicine in Cleveland. "We conducted our study to examine, in a large cohort, whether there is any difference in the treatment of heart attack patients with versus without [autoimmune diseases](#), and whether there is a difference in risk of death, heart failure or recurrent heart attacks over the long-term."

The researchers identified 1,654,862 people in the U.S. ages 65 and older in the Medicare Provider Analysis and Review (MedPAR) File who were admitted to the hospital with a heart attack diagnosis between 2014 and 2019. MedPAR is a government database of every hospital inpatient bill in the U.S. submitted to Medicare for payment. Of those records, 3.6% (60,072) had an inflammation-causing autoimmune disease noted in their charts within the previous year. The most common

condition was rheumatoid arthritis, followed by systemic lupus, psoriasis, systemic sclerosis and myositis/dermatomyositis. They found several important differences among people with vs. without autoimmune disease who had heart attacks:

- People with an auto immune disease were slightly younger—average age was 77.1 years vs. 77.6 years for those without an autoimmune disease.
- More of those with an autoimmune disease were women (66.9% vs. 44.2%).
- Those with autoimmune disease were more likely to have had a non-ST-elevation myocardial infarction (NSTEMI) heart attack (77.3% vs. 74.9%), and they were less likely to have an ST-elevation [myocardial infarction](#) (STEMI) heart attack (18.7% vs. 22.1%).

An NSTEMI, the most common type of heart attack recorded in the database, is caused by partial blockage of one of the coronary arteries that feeds oxygen-rich blood to the heart muscle. A STEMI heart attack, usually more dangerous, is from a complete blockage of one or more of the heart's main arteries.

The researchers matched each heart attack patient record with autoimmune disease to records of three heart attack patients without autoimmune disease based on age, sex, race and type of heart attack. After matching (and excluding people who had not been enrolled in Medicare for at least one year prior to their heart attack), the investigators compared [health outcomes](#) for about 2 years. The final dataset included 59,820 heart attack records of people with an autoimmune disorder and 178,547 of those without an autoimmune disorder.

The analysis found that people with an autoimmune disease were:

- 15% more likely to die from any cause;
- 12% more likely to be hospitalized for [heart failure](#);
- 8% more likely to have another heart attack; and
- 6% more likely to have an additional artery-opening procedure (if they had received one at the time of their heart attack).

"Patients with autoimmune disease and cardiovascular disorders are preferably managed by a cardio rheumatologist in conjunction with a rheumatologist to optimize cardiovascular health. Traditional CVD risk factors are accentuated in this population and how these risk factors manifest is also unique," said lead study author Heba Wassif, M.D., M.P.H., an assistant professor of medicine at the Cleveland Clinic Lerner College of Medicine and director of cardio-rheumatology at the Cleveland Clinic.

"For example, [cholesterol levels](#) are affected by inflammation, therefore patients with active inflammatory disease have lower levels of cholesterol, a phenomenon known as the lipid paradox," Wassif said. "Physical activity, which is highly recommended to improve cardiovascular outcomes, may be limited by joint pain. Furthermore, some disease modifying agents may increase cardiovascular risk. Knowledge of these nuances and a team-based approach may improve outcomes."

The researchers also found that people with an autoimmune disease were less likely to have heart catheterization to assess narrowed coronary arteries or to undergo an artery-opening procedure or bypass surgery regardless of the type of heart attack.

"It is possible that the people with an autoimmune disease were not healthy enough to undergo those procedures, or their coronary anatomy was less amenable to interventions to reopen narrowed or clogged vessels," Mentias said. These issues may place them at higher risk of

procedure-related complications. "When feasible, however, if someone is a suitable candidate, these procedures should be considered as options. The presence of autoimmune disease by itself should not preclude someone from potentially life-saving procedures."

The researchers did not have information on the anatomy of patients' coronary arteries, which limited the ability to assess whether anatomical differences may have influenced decision-making about vessel-opening procedures. The analysis is also limited by not having laboratory data on the severity and activity of patients' autoimmune disease, making it impossible for the researchers to assess whether the risk of complications and death following heart attack is higher in patients with severe forms of autoimmune disease compared with those who have a milder form or disease in remission.

"Future research is needed on medications and interventions that might reduce the heightened risk for poor outcomes in heart attack patients with autoimmune disease," Wassif said, "such as investigating whether different immune modulators and immune-suppressant therapies used to control and treat the autoimmune disease have any impact in improving post-heart-attack outcomes."

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