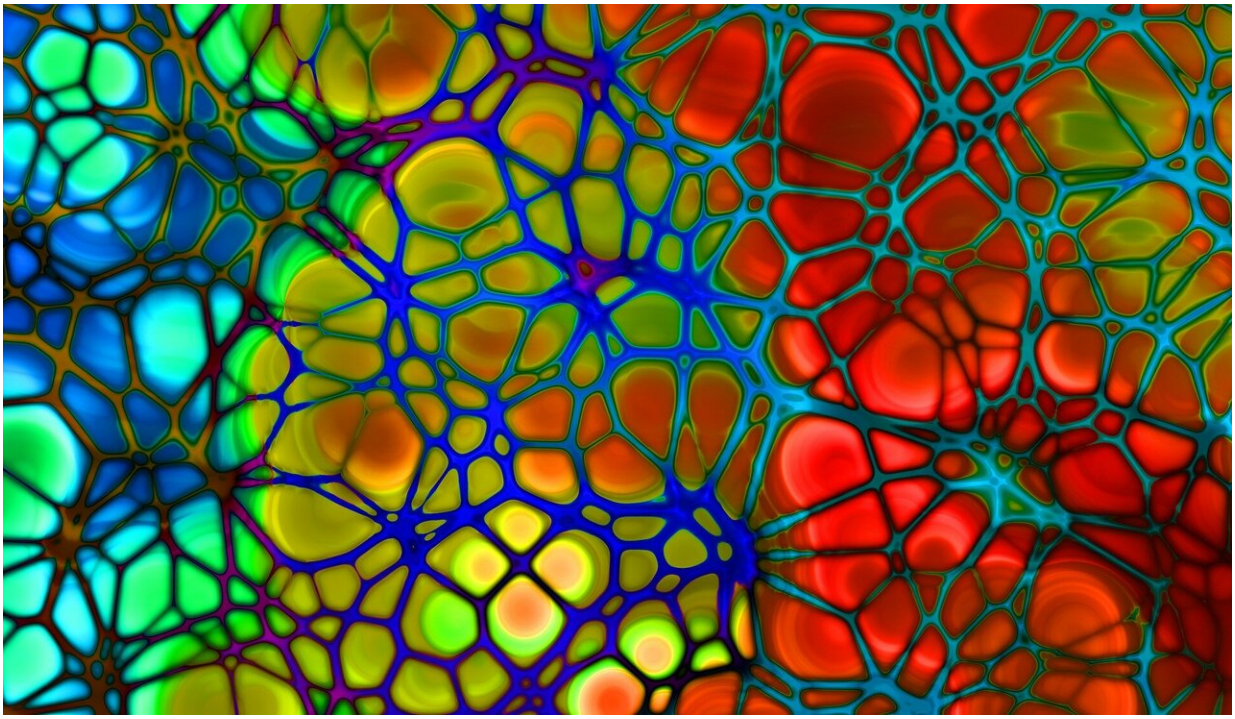
Medical Xpress

New findings boost understanding of arterial aneurysm

March 16 2020



Credit: CC0 Public Domain

Abdominal arterial (or aortic) aneurysm in older men is associated with levels of certain subtypes of white blood cells, a study from the University of Gothenburg shows. The study results belong to an expanding research field that is expected improve both knowledge of the disease and treatment options.

Enlargment of the abdominal aorta, also known as abdominal aortic aneurysm, is found in 1–2 percent of all 65-year-old men in Sweden. Its incidence in women is a great deal lower. The condition means that local enlargement of the abdominal part of the body's main artery occurs, in association with weakening of the vascular walls.

Most of those who have this disease are symptom-free, but if the artery successively enlarges the risk of rupture increases. Giving up smoking has a positive effect on the course of the disease, and every year about a thousand people in Sweden with this diagnosis are treated with preventive vascular surgery.

If rupture of the aorta occurs, it usually proves fatal in 70-80% of the patients. However, cases have become fewer with the decline in smoking and the introduction of a national screening program over the years 2006–2015. Today, this program includes all 65-year-old men in Sweden: eight out of ten opt to be investigated and, moreover, the program has created new scope for research.

Inflammation a major mechanism

The current study, published in the *Journal of Internal Medicine*, is part of the relatively early research ensuing from the screening program. It comprises data on 16,256 men screened in Gothenburg from 2013 to 2017. The number of men with abdominal aortic aneurysm included was 151, and these men were compared with 224 screened, matched controls.

The senior author is Åsa Tivesten, senior physician and professor of medicine at Sahlgrenska Academy, University of Gothenburg.

"We've examined levels of various subtypes of white blood cells (leukocytes), and been able to see that some are elevated in men in

whom the disease was detected at the screening, compared with healthy controls. This may tell us something about which mechanisms are involved in the development of the disease, and all this kind of knowledge can be valuable," she says.

"The results," she continues, "strengthen the hypothesis that inflammation is an important mechanism for the development of aneurysms. And that may come to be relevant to future drug development. Today, surgery is the only possible treatment, but if we're able to treat the disease with drugs in the future, at an earlier stage, this will have been a major step forward."

New perspectives

The first author of the study is Marcus Langenskiöld, senior consultant surgeon and associate professor in vascular surgery at the University of Gothenburg's Sahlgrenska Academy.

"What's interesting is that we've found factors associated with incidence of the disease, even after adjusting the figures by eliminating smoking. This opens up a research field where we might see what underlies the growth of some aneurysms and not others. Right now, we have no medicines to influence this growth, but the study creates new research opportunities," Langenskiöld says.

"The advantage is that we've now got screened patients, matched controls and a forward-looking perspective. A lot of research reports in the field, not least in the area of leukocytes, are based on data on patients admitted to hospital emergency departments, and that may make the data misleading."

More information: M. Langenskiöld et al. Leukocyte subsets and abdominal aortic aneurysms detected by screening in men, *Journal of*

Internal Medicine (2020). DOI: 10.1111/joim.13040