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Press release

For immediate publication

Anorexia nervosa: Slim yet sick?

Med Uni Graz study examines dangerous effects on blood vessels

Graz, 30 May 2022: Anorexia nervosa is much more than "just" an eating disorder. The people affected—usually young women—experience extreme emotional as well as physical distress. In addition to distorted self-perception, constant malnutrition also results in severe damage to different parts of the body. Anorexia may lead to heart arrhythmia, electrolyte and hormonal imbalances, early onset osteoporosis and many other problems. In a new study conducted by two research groups at the Otto Loewi Research Center at Med Uni Graz, scientists have focused on a consequence of anorexia nervosa that has rarely received attention. Julia Stadler of the Division of Pharmacology reports on significant changes in cholesterol levels and how they can impact the vascular system.

Lipoproteins as transport particles for cholesterol

Blood vessels blocked by deposits of lipids and other substances are a consequence of a larger number of disorders and diseases. Lipoproteins play an important role here. The average person is usually familiar with two of these lipoproteins: "good" HDL (high-density lipoprotein) and "bad" LDL (low-density lipoprotein). Both perform important functions: LDL transports cholesterol from the liver to different tissues in the body and HDL brings excess cholesterol back to the liver. "In recent years, it has also been demonstrated that HDL particles have additional protective functions such as antioxidant or anti-inflammatory activities," says Julia Stadler, explaining the beneficial properties of HDL particles. The two lipoproteins are practical, endogenous transport particles for substances that are insoluble in water such as cholesterol, fatty acids or certain vitamins. However, a high LDL concentration in the blood often leads to accumulation of fats in the walls of the blood vessels and ultimately to atherosclerosis.

Anorexia: dangerous increase in LDL particles

Due to cholesterol, atherosclerosis is often associated with being overweight. A new Med Uni Graz study shows that people who suffer from anorexia nervosa may also be affected by changes in lipoprotein levels that may favor the development of atherosclerosis. While the tests were not able to detect any significant changes in HDL cholesterol, a negative effect on LDL particles in the blood was found in patients with anorexia. Not all LDL is created equal: There are subgroups characterized by a higher or lower risk for atherogenic—i.e., atherosclerosis-causing—changes to the blood vessels. "Lipoproteins are extremely complex particles that differ in size and density. Numerous studies have shown that the smaller LDL subgroups are significantly more atherogenic and likely to accumulate in the walls of the blood vessels than larger particles," says Julia Stadler, explaining the dangers of these lipoproteins. In patients with anorexia nervosa, the number of more dangerous LDL particles increases, which can have a negative impact on the blood vessels.

Elevated VLDL increases the risk of cardiovascular disease

Another negative change in the blood of anorexia nervosa patients is the elevated level of VLDL. Similar to LDL, VLDL (very low density lipoprotein) is associated with an elevated risk of atherosclerosis or cardiovascular disease. Larger studies are still needed to determine the extent to which these lipoprotein markers are actually connected to the risk of such a disease in anorexia patients.

Further information and contact

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Profile: Julia Stadler

Julia Stadler studied molecular biology in Graz and then started a PhD program at the Medical University of Graz. Together with the head of research unit Gunther Marsche, the working group investigates changes in the protective function and the complex composition of HDL particles in inflammatory diseases.

To the publication

Anorexia Nervosa Is Associated with a Shift to Pro-Atherogenic Low-Density Lipoprotein Subclasses
<https://www.mdpi.com/2227-9059/10/4/895>