

Fear that freezes the blood in your veins

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"The blood froze in my veins" or "My blood curdled" – these common figures of speech can be taken literally, according to the latest studies. Indeed, more literally than some of us would like. For it turns out that intense fear and panic attacks can really make our blood clot and increase the risk of thrombosis or heart attack.

Earlier studies showed that stress and anxiety can influence coagulation. However, they were based almost entirely on questionnaire surveys of healthy subjects. In contrast, the Bonn-based research team around Franziska Geiser (from the Clinic and Policlinic for Psychosomatic Medicine and Psychotherapy) and Ursula Harbrecht (from the Institute of Experimental Haematology and Transfusion Medicine) have been the first to conduct a very careful examination of coagulation in patients with anxiety disorders.

Everyone experiences anxiety from time to time – fear of failing the math's test, dread of going down into the dark cellar or, in a more general sense, trepidation about what the future holds. But some people are gripped by powerful fears when confronted by quite normal everyday situations. For example, sufferers of agoraphobia frequently have panic attacks when caught up in a crowd. The symptoms can be dramatic: palpitations, sweating, shaking, blind panic or fainting – even leading to death. Another anxiety disorder frequently encountered can be described as social phobia. Those affected fear above all situations in which they become the centre of attention in a group. They begin to stutter or turn red. In order not to avoid embarrassment, social phobia sufferers may become recluses, shying away from human contact and staying at home.

The medical researchers in Bonn compared patients who suffer from a severe form of panic disorder or a social phobia with a healthy control group. In order to rule out as far as possible the influence of factors like age and sex, each of the 31 patients with anxiety disorders was matched with a corresponding healthy patient of the same

age and sex. The subjects first had to give blood samples and were asked to perform a number of tests on the computer. A second blood sample was then taken. The blood analysis, which measured various coagulation factors, produced a clear result: The group of anxiety patients showed a much more highly activated coagulation system than the healthy control group.

In the coagulation system two mechanisms operate that are indispensable to life and normally work in opposite directions, each counterbalancing the other. On the one hand, coagulation involves a thickening of the blood so that a plug can form and prevent excessive bleeding from damaged vessels. On the other hand, there is "fibrinolysis", a process that keeps the blood fluid and breaks down clots. In the case of the anxiety-disorder patients, however, the researchers observed through close analysis of the blood an activation of coagulation accompanied by an inhibition of fibrinolysis. Yet, apart from the prick for blood sampling, no real injury had occurred. For these types of patients, the coagulation system goes out of balance as the coagulation tendency rises – possibly with dangerous consequences. In extreme cases the imbalance can lead to blockage of a coronary artery.

The increased coagulation tendency could, says Franziska Geiser, be the "missing link" that explains why anxiety patients have a statistically higher risk of dying from heart disease by a factor of 3 or 4. "Of course, this doesn't mean that every patient with a marked anxiety disorder must now worry about having a heart attack. The coagulation values we measured were always within the physiological scale, which means there is no acute danger," adds the project leader. A real health threat only arises when other risk factors, like smoking and obesity, also come into the equation.

Franziska Geiser also has some good news for people with anxiety disorders. A follow-up study has produced the first evidence that coagulation activation subsides in patients who have completed

successful therapy for their condition. In this respect, Dr. Geiser calls for earlier diagnosis of anxiety disorders, pointing out that too much time is wasted before effective psychotherapy is prescribed. "After all, we have programmes to help the population give up smoking or take more exercise. But if we want to reduce the number of heart disorders, it would make sense to improve the way anxiety disorders are diagnosed and treated."

Source: University of Bonn

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