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Case Report

Transient global amnesia (TGA) and Takotsubo syndrome (TTS) in the same patient

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Introduction

Transient global amnesia (TGA) is a relatively common event whose etiology is still unclear but is often triggered by stress ^[1]. Takotsubo syndrome (TTS) is attributed to a stress reaction of the heart and clinically resembles a myocardial infarction, but without an anomaly of the coronary arteries ^[2]. It is an extremely rare occurrence for both phenomena to occur simultaneously in the same patient.

Case report

A concerned wife had taken her husband to the emergency room. They came from the funeral of a relative of whom the mid-sixties man had been very fond of. There he had suddenly been very confused. He had asked the same questions over and over again. Where are we here? What am I doing here? His wife had explained it to him - until he asked again. The neurologist on duty examined the patient in the emergency room. He was confused and couldn't remember what had happened since the funeral. A magnetic resonance imaging of the head was non-informative - the man had not had a stroke. The electroencephalogram, which shows the electrical activity of the brain, was normal, making an epileptic seizure unlikely. The man regularly took medication for high blood pressure and for heart failure that occurred after a tick bite. The wife said that her husband hadn't changed anything in the past few days.

Two laboratory values were significantly increased: troponin and the "brain natriuretic peptide" (BNP). Both indicate that the heart muscle is damaged. Troponin is released when more heart muscle cells perish - as in a heart attack. The man had also complained of chest pain and shortness of breath, although these symptoms were not so clearly in the foreground at first. The cardiologist was consulted. The EKG also showed evidence of a heart attack. In the heart ultrasound, the heart was beating irregularly and appeared noticeably swollen at the tip - possibly because it was not being supplied with sufficient blood there. The cardiologists examined the man using a cardiac catheter. Surprisingly, the coronary vessels were well patent, apart from age-specific deposits - so the man had not suffered a heart attack! The cardiologists now tapped on a so-called Takotsubo syndrome (TTS). Within a few hours, our patient's memory returned without further treatment. The acute cardiac insufficiency also normalized after a few days thanks to supportive heart medication.

Discussion

TTS is a special type of acute cardiac insufficiency. The phenomenon is also known as broken heart syndrome or stress cardiomyopathy. Typically, the apex of the heart protrudes in the form of a jar, just as was seen in our patient's heart ultrasound. Older women are often affected by TTS after they have experienced severe physical or psychological stress - after a bereavement, a violent experience, or a natural disaster. Exactly how the syndrome develops is unclear. One theory is that stress receptors on the surface of heart muscle cells are overstimulated. Another theory assumes that the coronary arteries contract under the influence of stress hormones. Those affected complain about the classic symptoms of a heart attack. In TTS, however, the symptoms are completely reversible. It remains unclear why the man was also so confused, i.e., had what is known as transient global amnesia (TGA). In TGA, the memory of recent events disappears. Patients can no longer remember where they are and how they got there. They forget what is happening in the here and now and keep repeating the same questions because they don't remember the answers. One risk factor for TGA is emotional stress. It is possible that TGA is caused by the increased release of stress hormones as a result of an emotionally stressful event - and is therefore very comparable to broken heart syndrome in terms of the brain. Very rarely, as in the present case, both phenomena occur together. There may be a causal connection between the two diseases.

It is concluded that TTS and TGA may co-occur and that both have to be regarded as a reaction to stressful events. Whether TTS is simply due to excess release of stress hormones or due to overstimulation of adrenergic receptors on the surface of cardiomyocytes, remains questionable. Patients with a TGA and TTS together, require through cardiologic and neurological examinations, not to delay the diagnosis and therefore the initiation of an adequate therapy.

Keywords: COVID-19, SARS-CoV-2, Vaccination, Rhabdomyolysis, Myocarditis

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