

Spätfolgen einer Virus-Myokarditis: Viele sterben binnen 10 Jahre

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Die 10-Jahres-Sterblichkeit nach einer durch Viren ausgelösten Myokarditis ist hoch. Deutsche Kardiologen haben nun untersucht, welche Patienten besonders gefährdet sind.

Late effects of viral myocarditis: Many die within 10 years

The 10-year mortality rate after viral myocarditis is high. German cardiologists have now examined which patients are particularly at risk.

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Given the current COVID-19 pandemic, the latest study results could cause concern.

Because, as an analysis by German cardiologists makes clear, the prognosis for viral myocarditis is generally quite unfavorable: almost 40% of the affected patients died within the next ten years, most of them from a cardiac cause, one in ten suffered sudden cardiac death.

Myocarditis can also occur as a result of a SARS-CoV-2 infection (as in this case report), although it is not yet clear whether this is an infectious myocarditis in the actual sense - i.e. the virus itself is the trigger - or whether the damage is caused by the immune overreactions associated with infection.

Virus type does not seem to play a major role

The current data is from the years 2002 to 2008, so it does not take into account infections with the SARS-CoV-2 virus. The virus most frequently detected in the biopsy at the time was parvovirus B19.

"These findings underline the previously unmet need for a non-invasive prognosis predictor to identify patients with a high risk of death," the authors working with Prof. Simon Greulich explain the need for research in this disease. The team led by the cardiologist from the University Hospital in Tübingen therefore took a closer look at affected patients in order to find precisely such predictors.

Myocardial damage on MRI is a bad sign.

The type of virus that caused the myocarditis actually seems to play a subordinate role.

Much more important for the prognosis of the patients were the MRI findings, specifically the detection of areas of necrosis or fibrosis using late contrast medium enhancement, known as late gadolinium enhancement (LGE).

Such a finding was associated with more than twice the risk of death compared to no LGE sequences (hazard ratio, HR: 2.4). The risk of dying from a cardiac cause even increased

threefold (HR: 3.0), the risk of cardiac death increased 14-fold (HR: 14.79). All of these associations were significant ($p \leq 0.009$).

Despite this strong association, it is important for cardiologists to emphasize that "not all patients with LGE will experience adverse events." In fact, according to recently published data, the negative predictive value of a normal MRI finding seems to be much stronger than the positive value of one LGE-positive findings, classify the findings. The location, pattern and extent of the LGE are important

Patients at risk can be identified in an even more differentiated manner if the location and pattern of the LGE and the extent of the myocardial damage are included in the risk stratification. In the current analysis, the risk of death was particularly high for patients with midventricular (antero)septal LGE sequences. Specifically, septal LGE signaled a high risk of sudden cardiac death; in the analysis, this turned out to be the best independent predictor for this cause of death (HR: 4.59; $p=0.01$). And the more extensive the myocardial scar, the higher the risk of death ($p < 0.001$). Particularly alarming in combination with a pump weakness

In addition, it might make sense to stratify the patients according to their left ventricular ejection fraction (LVEF). Those in whom LGE in combination with an LVEF $\leq 40\%$ could be detected had poor chances of survival. With an LVEF $> 40\%$, the risk of death was no longer significantly increased, even in the case of a positive LGE result. Only the association with the occurrence of sudden cardiac death remained.

In addition to evidence of LGE, older age, NYHA class $>II$ and a higher left ventricular end-diastolic volume were associated with increased mortality.

As a practical consequence of their findings, the study authors recommend that patients with biopsy-confirmed myocarditis and positive midventricular and septal LGE findings be closely monitored in the clinic.

COVID-19 patients also have abnormal MRI findings

Incidentally, positive LGE sequences and other MRI abnormalities can also be detected quite frequently in recovered COVID-19 patients (more on this in this article). However, the long-term consequences of these findings in these patients are still unclear.

In total, Greulich and colleagues followed 183 patients in whom viral myocarditis had been confirmed via endomyocardial biopsy for an average of ten years. MRI scans were initially taken within five days of hospital admission, at which time the patients were on average 53 years old. LGE was detectable in more than half, the mean LVEF was 44%.
Info (update from December 15, 2021)

This article deals with infectious myocarditis, ie the myocarditis was caused by pathogens, in this case by viruses. The data comes from times before the start of the corona pandemic. The study is therefore not about myocarditis which was observed in connection with the COVID-19 vaccination. These have a different genesis and according to the latest data, too