

## **Salvogene SARS-CoV-2 Task Force: Cardiological consequences of asymptomatic or mild cases of Covid-19.**

**KEYNOTE**

Dear Premium Customers,

**As we have already reported in our WhatsApp broadcast, an examination of the genetic mutations in the various types of SARS-CoV-2 virus currently circulating in the world reveals two trends.**

On the one hand, the viral load is in some cases significantly higher than before because of these mutations, and as a result the viruses are easier to catch, as can be seen from the sharp increase in the number of cases being reported. On the other hand, the multiplicity of mutations observed suggests that the number of very severe Covid-19 cases is decreasing and that the mortality rate is slowly falling. Yet overall mortality remains high due to the sharp increase in the number of infections. However, there are also several mutations that lead to more complex and complicated courses of the disease.

This is of particular importance for governments and public health services in drawing up their strategy for dealing with the pandemic. It is a different situation for those of us whose primary involvement is in health optimization. Not much has changed here as a result of the mutations. As far as the long-term damage and side-effects of SARS-CoV-2 infection are concerned, we believe it is now much clearer that, even where an individual is asymptomatic, lasting damage can occur without becoming immediately noticeable. This includes impairment of the heart. What we are seeing is inflammation of the heart muscle (medical name: myocarditis) which is relatively difficult to diagnose because there are no symptoms that point directly to this as the cause. It may be that a patient presents with a general feeling of exhaustion, a slight pain in the chest or difficulty in breathing. However, this also applies to people who do not have any pre-existing heart conditions at all, even to those who are very active in sports.

Myocarditis is an inflammation of the heart muscle, which in most cases is triggered by viruses. These include not only the SARS-CoV-2 virus, but also influenza or even otherwise harmless colds. We estimate that around 5-10% of all viral infections lead to a change in the heart muscle and that more than half of these cases heal again without further consequences. In the other half, however, the inflammation persists. It can develop into a chronic heart condition, and there is also the risk of heart muscle disorders or, in the worst case, sudden cardiac arrest.

Unlike other viral infections, the SARS CoV 2 virus is much more strongly linked to myocarditis. During the first wave in spring of this year, up to 20% of all patients treated in Europe had myocarditis. When we add to this the asymptomatic cases, then myocarditis is not an exception in SARS-CoV-2 infection, but is associated with an increased probability.

In order to determine the exact numbers, myocarditis must be diagnosed, and the only effective way of doing this is during the

course of an autopsy, in which tiny tissue samples are removed from the heart muscle with the aid of a special catheter.

As a preventive measure, we recommend an MRI (magnetic resonance imaging) in addition to the **regular heart check-ups that form part of our Salvagene Covid-19 Immunization Program as well as our Salvagene Premium Program**. We also examine your troponin level in the accompanying laboratory test in order to diagnose myocarditis at an early stage. Troponin is a protein complex that is released into the blood when heart muscle cells are damaged. This method allows myocarditis to be diagnosed with a high degree of probability, and for this reason we have included this marker as a standard value in both programs.

We have found that individual mutations of SARS-CoV-2 can make this virus more cardiotoxic and thus directly affect the heart muscle. SARS-CoV-2 patients actually affected by myocarditis span a broad spectrum ranging from symptomatic through to asymptomatic.

According to research done in Spain, 37% of all Covid-infected individuals are affected, but in a study conducted by the University Hospital of Frankfurt and published in the *"Journal of the American Medical Association"*, the figure was as high as 60%. We consider the latter figure to be at the very high end and are working on the assumption that the rate is currently in the range of 20-25%, with most of those affected not even noticing that they have contracted the disease. For this reason, we consider it all the more important to test this within our programs.

We expect the number of heart failure cases caused by the pandemic to rise very sharply over the coming decades. A diagnosis, even without symptoms, is important because it changes the protocol. Especially sporty and physically active

individuals would massively overtax their hearts if they had myocarditis. This is why we attach such great importance to the preventive examinations we undertake. From a cardiological perspective, there are of course other secondary diseases which we have already reported on, such as embolisms, leg vein thromboses, pulmonary embolisms and heart attacks.

In summary, it has to be stressed that, even where Covid-19 is experienced as a mild or even completely asymptomatic disease, it can still have a very serious long-term impact on the individual's health.

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