

PCR - smear test - or spit test?

A little discourse

I am often asked which is more sensible when you want to be tested for a possible corona disease. Should one go to the doctor for a PCR test, is it easier to go to one of the test centres to have a smear test done or are the recently available spit tests preferable?

To be clear, this is not a scientific essay. The subject matter is too complex for one hundred percent conclusions to be drawn. After all, everyone is diverse and there are so many different tests to which each person in turn reacts individually. So everyone has to make the decision for themselves.

So which method is the safest?

The safest method is the polymerase chain reaction (PCR) test, which is usually done by taking a swab from the mouth, nose or throat. PCR tests detect the genetic material, the RNA of the SARS-CoV-2 pathogen with a clinical sensitivity of up to 99.8 per cent. This means that, depending on the method used, such as sputum, naso-oropharyngeal or saliva, only 0.2 per cent of the test persons are false-positive.

However, PCRs are purely laboratory tests and therefore cannot be carried out at the point of care (POC). They are also expensive and thus a burden on the health system.

Rapid tests have been modulated to detect corona disease at an early stage, i.e. for screening and avoiding so-called spreaders. In any case, they are not as reliable as PCR tests. Some products now achieve very good results, the clinical sensitivity can be up to 95 per cent or more. The advantage is the rapid availability of the result, and the tests can also be used on site.

Up to what stage of the disease can the Corona virus be detected?

In symptomatic patients, the viral load gradually decreases and they are then no longer infectious in the course of the disease. PCR tests can identify the virus for weeks from the onset of the disease, but again this depends on the viral load.

Rapid tests cannot detect the virus over a longer period of time, as the viral load of the infected person decreases. They are therefore useful for detecting the onset of disease so that the patient can be isolated immediately. The higher the sensitivity of the test, the more reliable the result.

Comparison PCR- rapid test

In principle, it must be defined that the term "comparison" is already incorrect when comparing PCR and rapid tests. A laboratory test cannot be compared with a POC test because of the different procedures. Anyone who wants to know with a high degree of certainty whether a corona disease is present should undergo a PCR test.

Rapid tests, on the other hand, can be used much more flexibly in the field (point of care - POC) and are thus to be preferred in daily practice, even if they are not as accurate as PCR.

A laboratory test takes about 1.5 to 4 hours, depending on the manufacturer. If the test person is tested in the laboratory or at the doctor's office, the result can be available quickly. Most PCR test centres, however, are located outside the laboratory, i.e. externally. The further procedure is then determined by the logistics, i.e. how quickly the swabs reach the laboratory. In addition, the result depends on the number of persons to be tested. As a rule, this takes about 2 to 5 days.

If, as has recently been the case in the Swiss canton of Graubünden, a result can be announced within 6 hours, there is certainly internal testing here, or not very many people are tested.

So with laboratory tests, you always have to go to the test centre, whereas some rapid tests, once they are approved as so-called lay tests, can even be used at home. Seen en masse, rapid tests, as the name suggests, can achieve a stop to chains of infection more quickly.

Comparison of swab - spit test

Comparisons can certainly be made between these types of tests. Smear tests are still only allowed to be carried out by medical professionals. This makes sense, because the notorious cotton swabs have to be inserted deep into the throat or nose to detect the virus. Apart from the fact that this can be painful for quite a few test persons, the error rate is not exactly low, as there is often incorrect application.

Recently, tests have been offered in which a swab in the anterior nasal septum is sufficient to detect a disease. These can also be practised by laypersons, but the sensitivity is not as pronounced as with swabs from the posterior nasal septum.

With sputum tests, a distinction is made between sputum (saliva from the throat) and true sputum tests with saliva from the tip of the tongue. The disadvantage of sputum tests is that a higher amount of saliva has to be produced, which is more difficult for sick people, children and older people. Spit tests using saliva from the tip of the tongue make do with a minimal amount, so any person is able to meet the test criteria. They are also very accurate, with some products showing a clinical sensitivity of up to 95 per cent.

Which test is suitable for home use as a lay test?

Spit tests are absolutely recommended as lay or home tests, as in general the future belongs to tests approved for this purpose. After all, it is essential to strengthen the personal responsibility of citizens. Home tests will soon be available everywhere. In this way, everyone will be able to test themselves for the virus from the comfort of their own home at the onset of mild symptoms such as a scratchy throat, cough, fever, etc. These tests are particularly safe because they can be carried out at home. These tests are so safe mainly because they are very easy to use, because the simpler the technical procedure, the lower the error rate.

The Federal Ministry of Health (BMG) has recognised the opportunity that home tests offer to make a significant contribution to combating the virus and will soon release various products for use by lay people. In this way, anyone can test themselves at home for a potential Corona disease and, if the result is positive, isolate themselves on their own responsibility.

Summary

In summary, it can be said that a PCR test is the optimal solution for final virus detection. The disadvantage is that a person who may be ill does not isolate himself while waiting for the result for one or even several days, despite an increased viral load, and infects other people during this period.

Time, however, plays a significant role in containing the pandemic. The longer one waits to exhaust all possibilities for combating the virus, the less successful it will be to break the chains of infection, especially since new mutations of the virus are constantly appearing. For a long time, politicians underestimated people's sense of responsibility. However, no one who has been tested at home and found positive will want to deliberately infect others by not voluntarily isolating themselves.

So let's start stopping the chains of infection. Now. Together. In the interest of all.

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