15/09-2020

Test for pandemic coronavirus

Today, coronavirus diagnostics are primarily performed by PCR analysis. The test detects the virus gene and requires advanced equipment and handling. It takes several hours to perform the entire analysis and, in many cases, current capacity is not sufficient, which is why the response time in some cases can be several days. PCR analysis is not an optimal diagnostic method, as only approximately 70% of patients with COVID-19 have a positive test. This is not due to the quality of the analytical methods but due to the fact that late in the disease stage there is very little virus in the nose / throat from which the sample is taken.

During the pandemic, other tests have been developed to diagnose patients with COVID-19. As an alternative to PCR, it is now possible to detect viral proteins in patient samples. These tests are called antigen tests. Some of these tests are as sensitive as PCR in the early stages of the disease, and in a major French study results demonstrate that in the first eight days after the onset of symptoms 96% of PCR positive patients are found positive in the antigen test. The probability of a positive test was correctly defined as PCR positive was 100%. Therefore, there was extremely good compliance between the two types of tests.
The advantage of using antigen test is that the results are available 15 minutes after the sample is taken. The test requires no advanced equipment and people with minimal health professional background are able to perform the analysis. The test is significantly l than less expensive than PCR analysis.
The antigen test can be used to a far greater extent than the PCR test for screening individuals to detect infection. However, none of the tests are sensitive enough to completely exclude coronavirus infection. It will not provide greater security to perform both PCR and antigen testing as both tests are based on the detection of the virus.

If even greater security is wanted, an additional test for detecting the presence of protective antibodies can be performed. This antibody test requires a droplet of from a finger prick. The analysis time is 10 minutes and can be performed in parallel with the antigen test.

Lars P. Nielsen
Specialist in clinical microbiology and virology
larspn@gmail.com