

Rapid SARS-CoV-2 antigen testing compared with RT-qPCR in patients suspected for COVID-19

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Abstract

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Introduction: COVID-19 pandemic threatens global human health. Reverse-transcription quantitative polymerase chain reaction (RT-qPCR) is a reference test for identification of acute SARS-CoV-2 infection, but it is associated with results delay. There is a need of a fast and reliable tests which can improve the efforts of controlling the transmission of SARS-CoV-2.

Aim: This work aims to determine the analytical value of the rapid SARS-CoV-2 Ag-test in relation to the Ct values of the RT-qPCR.

Methods: Study group were outpatients suspected for COVID-19, sampled twice, first for the routine RT-qPCR, and second for SARS-CoV-2 antigen testing. The results obtained by the rapid antigen test (Panbio™ COVID-19) were evaluated in relation to the Ct values of the SARS-CoV-2 E-gene, obtained by RT-qPCR Allplex 19-nCoV multiplex assay platform.

Results: SARS-CoV-2 prevalence, based on RT-qPCR, was 50.8% (186/366). Specificity of the Panbio™ COVID-19 Ag Rapid Test was 100%. Test sensitivity was 73.8%. Restricting RT-qPCR to Ct-values < 30 increased test sensitivities to 91.2%.

Conclusion: The findings underscored the epidemiological value of the rapid Ag-test, since it reliably identifies contagious SARS-CoV-2 infected individuals who actively spread the virus in the community.

