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LETTER TO THE EDITOR

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Should RT-PCR be considered a gold standard in the diagnosis of COVID-19?

To the Editor,

In reference to the comments by Dramé et al,[1] that question the possibility of whether the reverse-transcriptase polymerase chain reaction (RT-PCR) for viral load should be considered a gold standard in the diagnosis of coronavirus disease 2019 (COVID-19). They justify this doubt due to its sensitivity, which only reaches 38%, and is certainly no better than luck. However, in the cited publication by Liu et al,[2] Hainan, China, it does not specify RT-PCR sensitivity. The position is remarkably interesting, considering that in one test their ability to make a diagnosis or screen for a condition often varies in prevalence. A change in prevalence from a lower to a higher value corresponds to a change in both sensitivity and specificity,[3] it is also the case in studies by Cassaniti et al,[4] Lombardy, Northern Italy. In neither of these studies is the prevalence reported. In Lombardy, in 18 March 2020, Cassaniti et al[5] study a total of 17 713 people tested positive for the COVID-19. Its prevalence in Italy was 238 833 confirmed cases and 34 675 mortalities as of 23 June 2020, while the prevalence worldwide was 9 289 255 recorded in data obtained from GISAID.[6]

It is important to take into consideration that there are asymptomatic carriers, as well as mild, moderate, severe, and critically ill stages of coronavirus disease, COVID-19,[7] each with different clinical signs, no manifestations or manifestations, and also variations in sensitivity, specificity, and prevalence of biomarkers, for example, in patients undergoing nuclear medicine procedures in Brescia, Italy, a region of high prevalence. Imaging studies,[8] such as ^{18}F-fluorodeoxyglucose positron emission tomography/computed tomography (CT) and ^{131}I single-photon emission computed tomography/CT, have been reported to show that asymptomatic subjects evolving to COVID-19 showed a metabolically active pattern of interstitial pneumonia. In SARS-CoV-2 infections, the combination of several methods improves not only the diagnostic efficiency but also the viral carrier as proposed by Lei et al[9] with a negative CT and a positive RT-PCR. In addition, from a total of 173 patients with the SARS-CoV-2 infection studied by Zhao et al,[10], Guangdong Province, China,[10] 1 to 7 days after symptom onset 67% tested positive, and 15 to 39 days after symptom onset, 45% by RNA by RT-PCR. In addition, immunoglobulin M (IgM) antibodies were found in 29% 1 to 7 days after symptom onset and in 94% after 15 to 39 days after symptom onset. The study in the Netherlands used the severity score for community-acquired pneumonia CURB-65, (confusion, urea, respiration, blood pressure, and age), as a way of classifying the clinical stages, as low/medium risk (0-2). CT had a sensitivity of 88.3% and high risk (≥3) had 100% sensitivity, depending on low-/medium-risk pneumonia or severe risk pneumonia.[11] CT has been observed to have a very consistent sensitivity in the pneumonia stage, for example, a sensitivity of 97.2%, while RT-PCR results in 84.6%.[12] This RT-PCR may increase the positivity rate, depending on the number of repetitions of this test. This shows that different tests could be chosen at each stage of the disease. Nevertheless, the idea is that, for patients clinically suspected of COVID-19, chest CT is carried out, specific nucleic acids by RT-PCR, and IgG and IgM antibodies for SARS-CoV-2 due to the variable specificity and sensitivity of these test depending on the clinical stage and prevalence.[13]

It is crucial to evaluate diagnostic accuracy studies, analytical validity, and testing for agreement in CT, RT-PCR, and antibodies tests at the different clinical stages. For the moment, whenever possible, it is more useful in clinical practice to evaluate tests by several methods because there is no generally accepted reference standard nor is there a gold test for the diagnosis of COVID-19.[14]

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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