

VIROLOGY, INFECTIOUS DISEASES AND COVID-19

December 07-08, 2020 | Virtual Event

SARS-CoV-2 identification in saliva: Are we interpreting the results correctly?

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In this study, we obtained cycle threshold (Ct) values by qRT-PCR with three sets of primers for the N gene (N1, N2, and N3) in saliva samples of inpatients with COVID-19 and asymptomatic health workers (AHW), it was compared with clinical and laboratory data. Data from 58 inpatients (37 critically ill patients and 21 patients with severe disease) and 105 AHW were obtained. In our system, the limit of viral detection corresponded to a Ct =46.5; therefore, our analysis focused on comparing the positivity rate obtained when using Ct <40 as the cut-off with that obtained using Ct <46 as the cut-off. The positivity rate was increased when the Ct cut-off of 46 was used as the criterion, yielding a sensitivity of 87.9% for patients and a sensitivity of 43% for AHW. The bivariate analysis revealed an association between Ct <40 for N2 and mechanical ventilation assistance among patients (p=0.013). In addition, the serological values of alanine transaminase (ALT), aspartate-transaminase (AST), lactate dehydrogenase (LDH), ferritin and creatine kinase MB (CK-MB) showed significant correlations with the Ct values of N1 and N3.

Our results support the claim that physicians should be informed of the Ct values obtained during the amplification of viral markers, as well as the Ct values that correspond to the limit of detection for viral RNA, which vary according to the characteristics of each system and amplification protocol used.

Keywords: COVID-19, Cycle threshold (Ct), qRT-PCR, saliva, SARS-CoV-2, asymptomatic health workers (AHW)

Biography:

Nelly R. Gonzalez-Arenas Bachelor's degree in biology from the UNAM faculty of sciences, master's degree in biological sciences and PhD in biomedical sciences from the UNAM faculty of medicine.