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Letter to the Editor

Letter to the editor on "Asymptomatic infection by SARS 2 coronavirus: Invisible but invincible" by Nikolai et al. 2020

We send this letter regarding the article "Asymptomatic infection by SARS 2 coronavirus: invisible but invincible," published in the *International Journal of Infectious Diseases* (Nikolai et al., 2020). The review was interesting in many aspects, particularly those related to the lack of a widely accepted definition of asymptomatic carriers and presymptomatic patients and the need to include these types of cases in regular epidemiological surveillance.

However, it is necessary point our a clarification related to the viral load and RT-PCR. The authors stated that "the virus load is measured by the cycle threshold (CT value)." The RT-PCR test for the diagnosis of SARS-CoV-2 is a semi-qualitative test capable of identifying the presence or absence of viral RNA copies (Corman et al., 2020). The CT value corresponds to the number of cycles in an RT-PCR assay necessary to reach a detectable level. Although several authors have used the CT value associated with viral load indistinctly to estimate the latter, it is also necessary to quantify the RNA copies (Keyaerts et al., 2006) or to make an estimate by standardizing a curve that calculates the number of copies based on a CT (Yu et al., 2020; Zheng et al., 2020). Hence, using the CT as an equivalent to viral load may prove to be challenging.

It is not a mere technicality if one considers that patients with more complex clinical pictures present CT values earlier, which would suggest higher viral loads (Wölfel et al., 2020). However, this is not clear in the case of asymptomatic patients since there are no statistically significant or clinically verified differences between the CT of asymptomatic and symptomatic groups of patients (Long et al., 2020; Singanayagam et al., 2020). In our experience with a cohort of workers, the CT in asymptomatic patients did not differ significantly from the symptomatic ones ($Chi^2 = 215$; $p = 0.72$) (Figure 1).

Another point that deserves consideration is the role of asymptomatic carriers as disseminators of the infection. Although the transmission of the virus from asymptomatic patients has been reported in several studies, the absence of respiratory symptoms such as sneezing or coughing limits their potential to spread (Wang et al., 2020).

We agree with the authors who stated that putting hope in herd immunity based on the transmission of the virus through contact with asymptomatic patients is hasty, considering the low seroconversion rates presented in asymptomatic carriers (Yongchen et al., 2020).

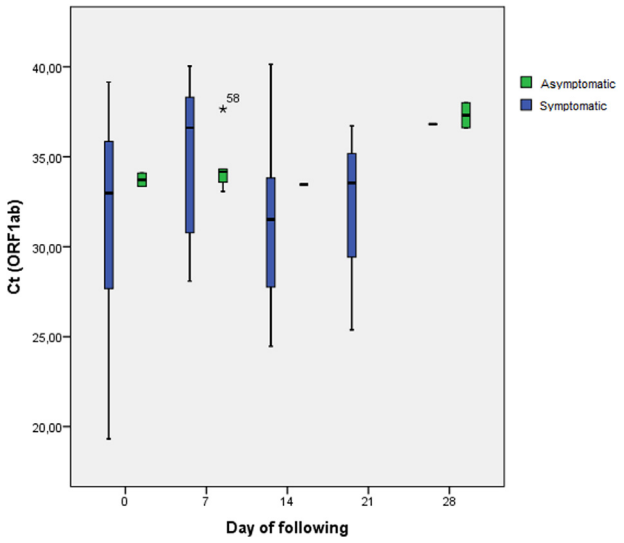

Figure 1. Box plot of CT among positive workers of the Cohort SPIN, 2020.
We followed a cohort of 202 airport workers from the 1st of June to 31st of August 2020. We carried out nasopharyngeal swaps every 21 days to the cohort. Workers who tested positive for SARS-CoV-2 were followed up at home on the 7th, 14th, 21st and 28th day after the first sample was taken. To date, the incidence of the infection is 7.9%. 79% of the cases (n = 13) were asymptomatic and 21% (n = 3) were mild COVID-19 cases. The median value of the initial CT in the asymptomatic group was 33.43 (I.Q.R. 28–36.63); the CT in the symptomatic group was 34.13 (I.Q.R.33.43–36.87). The difference in CT between the groups of patients was not significant ($Chi^2 = 215$; $p = 0.72$).

Conflict of interest

None

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Ethical approval

The referenced cohort results came from the project "SPIN: Transmission in the working environment of the international airport El Dorado/Luis Carlos Galán: a sequential explanatory mixed study" approved by the Research Ethics and Methodologies Committee (CEMIN) of the National Institute of Health of Colombia with the code 012/2020.

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References

Corman VM, Landt O, Kaiser M, Molenkamp R, Meijer A, Chu DK, et al. Detection of 2019 novel coronavirus (2019-nCoV) by real-time RT-PCR. Euro Surveill [Internet] 2020;. . Jan 23 [cited 2020 May 6];25(3). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6988269/.

Keyaerts E, Vijgen L, Maes P, Duson G, Neyts J, Van Ranst M. Viral load quantitation of SARS-coronavirus RNA using a one-step real-time RT-PCR. Int J Infect Dis [Internet] 2006;. . Jan [cited 2020 Sep 10];10(1):32–37. Available from: https://linkinghub.elsevier.com/retrieve/pii/S1201971205000603.

Long Q-X, Tang X-J, Shi Q-L, Li Q, Deng H-J, Yuan J, et al. Clinical and immunological assessment of asymptomatic SARS-CoV-2 infections. Nat Med [Internet] 2020;. . Aug [cited 2020 Sep 10];26(8):1200–1204. Available from: http://www.nature.com/articles/s41591-020-0965-6.

Nikolai LA, Meyer CG, Kremsner PG, Velavan TP. Asymptomatic SARS Coronavirus 2 infection: Invisible yet invincible. Int J Infect Dis [Internet] 2020;. . Sep [cited 2020 Sep 10];S1201971220307062. Available from: https://linkinghub.elsevier.com/retrieve/pii/S1201971220307062.

Singanayagam A, Patel M, Charlett A, Lopez Bernal J, Saliba V, Ellis J, et al. Duration of infectiousness and correlation with RT-PCR cycle threshold values in cases of COVID-19, England, January to May 2020. Eurosurveillance [Internet] 2020;. . Aug 13 [cited 2020 Sep 3];25(32). Available from: https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.32.2001483.

Wang Y, Kang H, Liu X, Tong Z. Asymptomatic cases with SARS-CoV-2 infection. J Med Virol [Internet] 2020;. . Sep [cited 2020 Sep 10];92(9):1401–1403. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1002/jmv.25990.

Wölfel R, Corman VM, Guggemos W, Seilmaier M, Zange S, Müller MA, et al. Virological assessment of hospitalized patients with COVID-2019. Nature [Internet] 2020;. . May [cited 2020 Sep 10];581(7809):465–469. Available from: http://www.nature.com/articles/s41586-020-2196-x.

Yongchen Z, Shen H, Wang X, Shi X, Li Y, Yan J, et al. Different longitudinal patterns of nucleic acid and serology testing results based on disease severity of COVID-19 patients. Emerging Microbes Infect [Internet] 2020;. . Jan 1 [cited 2020 Sep 10];9(1):833–836. Available from: https://www.tandfonline.com/doi/full/10.1080/22221751.2020.1756699.

Yu F, Yan L, Wang N, Yang S, Wang L, Tang Y, et al. Quantitative Detection and Viral Load Analysis of SARS-CoV-2 in Infected Patients. Clin Infect Dis [Internet] 2020;. . Jul 28 [cited 2020 Sep 10];71(15):793–798. Available from: https://academic.oup.com/cid/article/71/15/793/5812997.

Zheng S, Fan J, Yu F, Feng B, Lou B, Zou Q, et al. Viral load dynamics and disease severity in patients infected with SARS-CoV-2 in Zhejiang province, China, January-March 2020: retrospective cohort study. BMJ [Internet] 2020;. . Apr 21 [cited 2020 Sep 10];m1443. Available from: http://www.bmj.com/lookup/doi/10.1136/bmj.m1443.

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