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Letters to the Editor / Cartas al Editor

WHY WAS THE SARS-COV EPIDEMIC (2002- 2003) SO RAPIDLY CONTAINED WHILE SARS-COV-2 EASILY SPREAD SINCE DECEMBER 2019 AND GAVE RISE TO THE ACTUAL PANDEMIC?

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[Spanish version](#)

Dear editor:

The key points to answer this question are tightly related to the intrinsic characteristics of each virus and the population and demographic circumstances. .

Both viruses share the same sources and means of transmission which we already know, thus the prevention methods are the same (Correct hygiene, masks, etc). These aspects did not influence the struggle that was to contain the virus since 2019. The pair possess a similar mortality rate, being 10% for SARS - CoV and 0.7-20% for SARS- CoV-2, depending on comorbidities and risk factors like age or previous conditions and diseases. This 10% difference on mortality of SARS - CoV -2 could be attributed to the greater severity of its clinical manifestations ¹⁻⁶.

Nevertheless, SARS - CoV-2 differs from SARS by its incubation period, infectious period, transmissibility and dissemination capacity. SARS - CoV -2 incubation period can be from 5 to 16 days, contrasting with SARS which is minor, from 2 to 10 days. In other words, SARS symptoms are presented faster than those of SARS - CoV - 2. Besides, SARS symptoms coincide with its infectious period, and that is why isolation measures in 2002-03 were more effective, as it was easier to identify who could be spreading the virus and isolate them immediately ¹⁻³. However, SARS -CoV-2 can transmit during early stages of the disease, time in which the individual is still asymptomatic, so when isolation starts it is late because the virus may have already been transmitted. Then, isolation will be effective depending on the amount of transmission that occurs before symptoms appear. This explains why control methods such as temperature measurement are not a

completely effective screening technique to detect possible infected people²⁻⁴.

Another important concept is the basic reproductive rhythm (R0), which is inherent to each infectious disease. It is highly used in epidemiology, and determines the epidemic potential of an infectious agent. Through a series of studies it was concluded that SARS-CoV-2 counts with an average R0 of 3.28 and SARS of 2.79 (R0 higher to 1 indicates the probability of an increase in transmission). This demonstrates the greater difficulty for containing SARS-CoV-2 and possibility of it becoming an epidemic/pandemic³.

All the information above also allows us to understand the reason for SARS-CoV-2 higher morbidity. For example: During the 8 months of the SARS epidemic, 8098 cases were reported. Conversely, since the first case of SARS-CoV-2 in December 2019 until February 2020 80.000 cases had already been reported, ten times more in just 3 months. This means that even if we take into account the smaller total population in that time, SARS-CoV-2 still counts with a greater morbidity than SARS-CoV. This alarming contrast regarding the higher number of cases throughout the same period of time clearly proves its superior propagation rate. Due to this we know that the strongest restrictive measures were implemented after this 3 month period, in which would have been of great importance to limit interpersonal contacts. Nonetheless, these 2 viruses have an 86% similarity in its genome, thus, other explanations for the actual pandemic apart from the mentioned above should be suspected³⁻⁴.

As stated in the beginning, there are several demographic circumstances and factors which contribute to comprehending the complexity at dominating SARS-CoV-2 in comparison to SARS-CoV.

Let's begin by saying that the cities of origin were different. Wuhan is central China's biggest city, with a population of over 11 million; it represents one of the most important industrial and commercial locations; its train station, airport and seaport are one of the biggest in the area, therefore it counts with a wide and direct communication with the whole world. In this way Wuhan's characteristics facilitated the dissemination of SARS-CoV-2 towards multiple continents in a matter of hours.

The rise in the population in the last decades is one of the other fundamental factors in the matter. Guangdong (SARS epidemic epicenter) has a larger number of people than Wuhan because it is a province while the other is a city, but Wuhan has a higher population density. In Wuhan, as in many other Chinese cities, the population density has tripled since 2002. Moreover, in Guangdong the density is 600 per square meter, less than half of the one in Wuhan which is of 1400. Hence, agglomeration in homes, public transportation, work areas and other places was higher, amplifying contact between people and so the probability of infection¹.

Finally, I must point out the fact that during the previous days of total quarantine in Wuhan approximately over 5 million people traveled out of town to various places both in China and to neighboring countries and continents. And logically many of these travelers may have been infected and incubating the virus, facilitating its arrival all over the world.

In conclusion, from the investigated and mentioned in the text, I consider that the reason why the SARS virus was successfully contained and SARS-CoV-2 was not is, on one hand, because of the difference between incubation and infectious period of both viruses. These two factors constitute a struggle when it comes to detecting possible cases before

symptoms arise and infectivity is active, turning screening methods inefficient, such as temperature control or isolation indication since the beginning of symptoms. The higher basic reproductive rate of SARS-CoV-2 also plays a part in that sense. The 2019 different and new demographic conditions such as the difference in population density, Wuhan's quick communication with the world because of the industrial aspects, the modern capacity of traveling around the world in simple hours time, and the remarkable increase in population between 2002 and 2019 also contributed to the spread of SARS-CoV-2. In the end, these are the consequences of the world we currently live in, a bigger and more globalized one than in the year 2002.

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