

SARS: Will the epidemic recur?

The global crisis brought about by the sudden appearance of the severe acute respiratory syndrome (SARS) seems to be over. The rapid and efficient control measures triggered by the alert launched by the World Health Organisation (WHO) have lowered the coefficient of reproduction to below one in all of the outbreak areas, and as of this writing more than 20 days have passed since the last case of SARS was reported. Nonetheless, we do not know whether or not SARS has been eradicated. It is possible that SARS-CoV continues to be transmitted at a low level among humans or that it persists in an animal reservoir or in another environmental source and that it could cause outbreaks once certain conditions are again met. This uncertainty derives from a lack of knowledge on several aspects of the disease, knowledge which could aid in defining the dynamics of the epidemic and in formulating projections. In particular, the following questions still need to be answered: i) Is the occurrence of SARS seasonal?; ii) What is the clinical spectrum of SARS-CoV infection and for how long do patients who have recovered continue to excrete SARS-CoV in respiratory secretions or stool?; and iii) Does an animal cycle or an environmental source of infection exist?

As is the case with infections caused by other human coronaviruses, such as 229E, the occurrence of SARS could be seasonal, peaking in late winter. If so, then the interruption in the chain of transmission is only temporary, and the virus is still present in human beings. We know that other severe viral infections, such as Ebola and Lassa fever, can be asymptomatic, although persons with asymptomatic infection are not necessarily able to transmit the infection to other susceptible hosts. With regard to SARS, the few studies that have been conducted have shown no evidence of infection (i.e., RNA sequences or seroconversion) among healthy contacts of SARS cases or other SARS-free individuals (R1, 2). To determine whether or not SARS-CoV can be chronically excreted, possibly in faeces, we need data from the long-term follow-up of persons who have recovered, yet these data are not available. Moreover, misdiagnosis or under-reporting, especially in cases of atypical or mild clinical presentation, may occur, and this could maintain the chain of transmission at an undetectable level.

As found with Ebola, it is possible that SARS-CoV continues to circulate in an animal reservoir and that under certain conditions it may again cross into the human population. A coronavirus similar to SARS-CoV but with an extra stretch of 29 nucleotide bases has been found in palm civets and a racoon dog (3). However, since viruses tend not to gain stretches when they jump across species, it is very unlikely that SARS-CoV moves from humans back to animals and then back to humans. Nonetheless, SARS-CoV or similar viruses might survive in another animal

reservoir and cross the barrier again, yet we cannot predict when. Finally, whether other environmental reservoirs exist remains unknown.

With these caveats in mind, it can be said that predicting the recurrence of SARS is quite difficult. Our priority thus becomes that of strengthening the capacity to identify and control future outbreaks of the disease.

References

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