



## **COVID-19: Is Reinfection a Threat or Not?**

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### **Dear Editor-in-Chief**

The culprit of the latest pandemic, identified as SARS-CoV-2, was detected between Nov and Dec 2019, when it was isolated from throat swabs in Chinese patients (1). Since then it has caused devastating effects in several regions specially in Italy, USA and Spain, and it was declared as a pandemic by the WHO several weeks ago (1). As of Mar 23, at least 600,000 cases have been confirmed around the world with as much as 30,000 reported deaths; deepening the problem, the virus can be detected even 25 d after symptom onset filling even more the possible concerns regarding the control of this new public health threat. Another, one of these concerns in this new pandemic is the possibility of reinfection, in this article we strive to present some evidence regarding this possibility.

Now, the current available evidence is not as clear, the press and several newspapers have given light on reports of some of such happenings, but the characteristics and contexts of the cases are somewhat unclear. Although we could not find case reports in indexed journals providing evidence of reinfection in patients, we found a research letter which provides some information regarding this aspect: in this articles, the authors show some results of some patients, who recovered from COVID-19, which were negative at medical discharge were in follow-up positive again (2).

Several articles published between Feb and Mar by the press related some cases similar to the

ones reported in the aforementioned research letter (3-5), in this cases the patients were discharged testing negative and without symptoms just to return several days later with symptoms and testing positive again. These types of cases were reported to occur in China, Japan, and Korea. Even as this is what was stated in the press, these cases could be the result of faulty tests, false positive, discrepancies between tests, premature medical discharges or they are sick of other causes and test positive for dormant fragments of the disease (6). Even as this could be the case this positivity after discharge could be fairly common, at least 14% (7). However, there is a silver lining, a small study on monkeys could suggest that reinfection is of little or no concern (8). Unfortunately, this study is relatively small, it has been not peer-reviewed and most likely is not strong enough to provide good evidence (8).

Finally, right know SARS-CoV-2 has become one of the greatest public health threats of the last decades, cases and death toll have rising dramatically over the last weeks, businesses and lives have been shattered, normal lives disrupted, and the end of the epidemic is still far. At the moment mitigating the effects of the pandemic on normal lives and vulnerable populations is what's important, afterward as with SARS-CoV-2, controlling community transmission will be vital (9), although at the moment it is rather difficult, even with strict measures and a strong public health system.

What goes against the possibility of reinfection as a public health problem is that immunity to pandemic coronavirus should last a fair amount of time: immunoglobulin count in patients that suffered other pandemic coronavirus lasted for at least two years indicating that patients could be susceptible to reinfection after three years (10). This finding of the time of an adequate presence of the tools used by the immune system to fight infections contrasts with those suggested in the reports of reinfection, since although immunity may fade over time, but not on the scale of weeks as these reports suggest. On the other hand, the tests used are very sensitive to detect viral genetic material and, although the patient has recovered from COVID-19 infection, fragments of the virus can persist in the human body - while the immune system eliminates them - and these fragments can be detected by these tests, but it is not a new infection.

One additional problem for control and is that at least two types SARS-CoV-2 may be circulating, one more lethal than the other. As well, reports of possible reinfection are not readily available, and information is relatively scarce. Finally, one of the problems is that the press, newspaper journals and other new outlets depend of sensationalistic news to survive. They sought discord on purpose, sensationalistic news and headings; they also hide information, are sometimes biased, and sometimes put opinions as facts. Therefore, it should not be assumed that these patients recovered from COVID-19 were reinfected again, but more studies should be done.

### Conflict of interest

The authors declare no conflict of interest.

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