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Letter to the Editor

Exceptionally high COVID-19 viral load and very long duration of shedding in a young pauci-symptomatic child with autism resident in an Italian nursing home

Few studies so far have focused on the duration of COVID-19 detection in asymptomatic or pauci-symptomatic subjects^{1,2}. In asymptomatic adults, the median time from the first positive test to the first of two consecutive negative tests ranges between 7 and 23 days. Only two case-report studies have concerned children, with a detectable virus for 10 days³ and for 17 days⁴.

There are multiple reports of prolonged viral shedding in people infected with SARS-CoV-2 but the presence of viral RNA on a test does not necessarily correlate with infectivity⁵⁻⁸.

The duration of quarantine required after clinical recovery to definitively prevent transmission is therefore uncertain.

We report a case of exceptionally high viral load and extremely slow SARS-CoV-2 RNA shedding in a toddler resident in Villa Santa Maria rehabilitation Institute, a well-known Nursing Home in the Lombardy region.

An Italian child with autism and severe intellectual disability, nine years old, resident in our Institute from 2018, on April 20th developed a cough and nasal discharge. On the evening of April 21st, a moderate fever (38.3 °C) was registered, disappearing on the morning of 22nd. All symptoms vanished from the 22nd afternoon.

At the objective examination, no clinical signs of lung involvement were noticed. The child underwent nose-pharyngeal swab for COVID-19 virus detection on April 24th.

Quantitative RT-PCR indicated a viral load corresponding to a Cycle Threshold(CT) value = 6 (10.5 log₁₀ copies/mL). After this first swab other five repeated tests performed approximately every two-three week confirmed the detection of COVID RNA with CT values of 29,30,36,26, 34 along the following twelve weeks (Fig. 1), till July 15th, date of the last positive swab. The subject was maintained in isolation for all this period considering viral load levels potentially related to infectivity as those registered. The first negative swab was registered on August 4th followed by a second negative swab on August 6th. At this latter date a high specific IgG response was registered with S/CO titers (Log₂) > 10.

Throughout this period the subject remained asymptomatic. Blood examination tests revealed the presence of marked neutropenia (neutrophil count = 930/ml) and a low percentage of CD4 helper lymphocytes (25%).

This case suggests that in pauci-symptomatic children exceptionally high viral load can be detected and consequently the virus shedding can take a long duration, 82 days precisely. Careful monitoring with repeated tests at regular intervals checking CT values is important to establish the duration of the infectivity, which, as suggested by recent studies^{9,10} can be considered absent only with CT values above 34.

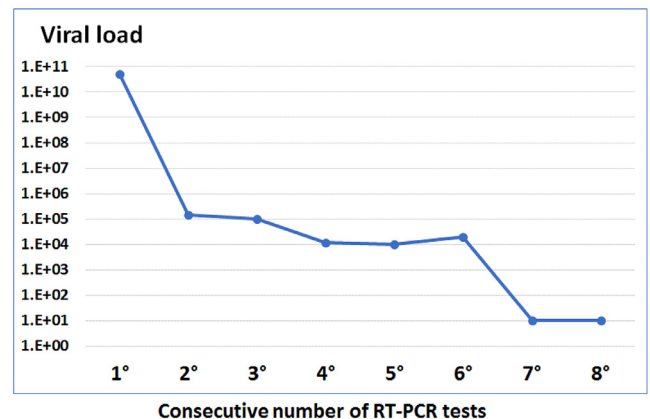


Fig. 1. Course of viral load throughout the study.

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