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Can Social Distancing Alone Really Improve Respiratory Functions in Pediatric Patients with Cystic Fibrosis?

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LETTER TO THE EDITOR

We read with interest the article by Bagalini, *et al*., who reported on a retrospective cohort study of 25 pediatric patients with cystic fibrosis who had forced expiratory volume (FEV), forced vital capacity (FVC), and forced expiratory flow (FEF) 14 month before the start of social distancing due to the COVID pandemic (T1), at the start of social distancing (T2), and 14 months after the start of social distancing (T3) [Bagatini, M. A. *et al*., 2023]. It was found that the ratio FEV/FVC and the FEF increased during social distancing and the use of antibiotics decreased [Bagatini, M. A. *et al*., 2023]. The study is excellent but raises concerns that should be discussed.

The major limitation of the study is its design [Bagatini, M. A. *et al*., 2023], which was retrospective, single-center, and uncontrolled. In addition, the number of patients included was small. In order to achieve the goals of the study and draw reliable conclusions, it is imperative to examine a significantly larger group prospectively and in a multicentre manner and to compare the verum group with an age- and sex-matched control group. Unless such a design is applied, the conclusions drawn from it are unreliable.

A second limitation is that it is not explained why a period of 14 months was chosen for all 25 patients. Were these 25 patients actually under social distancing for such a long period of time, did the duration of social distancing actually extend over the same period of time for each individual or did the duration of social distancing vary between the patients? It is crucial to know the exact individual duration of social distancing in each individual case, as this can significantly influence the readings in pulmonary function tests. A short period of social distancing may have different effects on outcome parameters compared to longer periods of social distancing. Therefore, the duration of social distancing for each individual patient should be specified.

A third limitation is that social distancing has not been defined in detail. Do the authors mean not leaving the apartment or house at all, or simply not going to school or kindergarten, or not going to the playground. It is imperative to know the specific type of social distancing as it can greatly influence the outcome parameters.

A fourth limitation is that it was not reported whether parents and other first-degree relatives of an index patient living in the same household underwent the same measures as the index patient. The effectiveness of social distancing may also depend heavily on whether all family members are subject to the same restrictions as their children and whether all members of a household adhered equally to these restrictions.

A fifth limitation of the study is that alternative explanations for the results were not discussed in detail. For example, it is conceivable that pulmonary functions improved due to better motivation after social distancing. The patients could have been happy to be out of the cage again, which would have given them specific strength and motivation. It is also conceivable that ventilation performance improved due to reduced individual and social stress during and after social distancing. It is also conceivable that after social distancing ended, doctor's visits were possible again and new medications were prescribed that improved pulmonary and ventilation output. Since shutdowns during the pandemic have been shown to be associated with lower pollution, lower carbon dioxide emissions, and lower nitrogen dioxide emissions, we should know how better air quality contributed to improved pulmonary functions in the included patients. How did increased time spent on therapy (inhalation therapy, oral

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medications, adequate nutrition, physical therapy) contribute to the improved spirometry parameters?

Overall, the interesting study has limitations that call into question the results and their interpretation. Clarifying these weaknesses would strengthen the conclusions and could add value to the study. Before concluding that social distancing was responsible for improved respiratory functions and performance in patients with cystic fibrosis, well-powered studies with an appropriate design are imperative.

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