



Poor Respiratory Health Following Relapsing SARS-CoV-2 Infection in Children with Cystic Fibrosis: Correspondence

Mohanchandra Mandal¹ · Susanta Sarkar² · Antonio M. Esquinas³

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To the Editor: We applaud the authors for the article describing poor respiratory health in two children with cystic fibrosis (CF) owing to relapsing severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection [1]. Some facts can justify their heartening outcome in those patients. Although the authors used terminologies ‘persistent infection’ for the first patient and ‘recurrent’ for the second patient, we are hesitant to fully agree with them. The authors [1] have also expressed dilemma about the prolonged sufferings in the second patient—whether due to reinfection or persistent infection. The reverse transcription–polymerase chain reaction (RT-PCR) test cannot distinguish between infective and inactive virus [2]. Prolonged viral shedding (detection of SARS-CoV-2 viral RNA from respiratory tract specimens) for durations of as high as 63 d (median 31 d) have been reported [2].

Infection with SARS-CoV-2 usually causes considerable morbidity and mortality, especially in patients with pre-existing respiratory diseases. However, the surprising observation is that SARS-CoV-2 infection in CF patients did not cause worse outcomes [3]. In CF patients, the serine protease inhibitors such as serpin family B member 1 (SERPINB1) and ecotin remains elevated. This inhibits the activity of serine protease transmembrane serine protease 2 (TMPRSS2) which plays a key role in SARS-CoV-2 infection. The higher levels of anti-inflammatory angiotensin-(1–7), lower levels of proinflammatory TMPRSS2 and IL-6, better handling of

viral processing by the specific cellular process (autophagy, endosomal function, etc.), young age, rarity of cardiovascular risk factors, long-term use of antibiotics, the characteristic respiratory microbiota—all can contribute to favorable immune response and better outcome in CF patients after SARS-CoV-2 infection [3, 4]. Azithromycin can reduce sodium resorption by airway epithelial cells, improve mucociliary clearance, and shows anti-inflammatory effect [3]. Both azithromycin and ciprofloxacin (weak bases) can reduce the cellular entry of SARS-CoV-2 by raising the pH of endosomes and lysosomes [3].

Declarations

Conflict of Interest None.

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✉ Mohanchandra Mandal
drmcmandal@gmail.com

¹ Department of Anesthesiology, Institute of Post Graduate Medical Education & Research/S.S.K.M. Hospital, Kolkata, West Bengal 700088, India

² Department of Anesthesiology, North Bengal Medical College & Hospital, Sushrutanagar, Darjeeling, West Bengal, India

³ Intensive Care Unit, Hospital Morales Meseguer, Murcia, Spain