Immunosuppressants

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COVID-19 infection: case report

A 12‐year‐old girl developed COVID-19 infection during immunosuppressant therapy with rituximab for Epstein–Barr virus associated polymorphic post-transplant lymphoproliferative disorder, along with immunosuppressant therapy with tacrolimus, mycophenolate mofetil and prednisone [*routes and duration of treatments to reaction onset not stated; not all dosages stated*].

The girl had end‐stage respiratory failure due to cystic fibrosis and underwent bilateral lung transplantation (LT). Her post-transplant course was complicated by Epstein-Barr virus and polymorphic post-transplant lymphoproliferative disorder. Therefore, she was treated with 4 infusions of rituximab 375 mg/m^2 weekly between month 9 and 10 after the transplant. Additionally, she had been receiving maintenance immunosuppressive regimen including tacrolimus, mycophenolate mofetil and prednisone [*initial dosage not stated*]. After 10 months of LT, she was admitted for a cough, fever and respiratory distress requiring a maximal oxygen flow of 2.5 L/min. She was diagnosed with severe COVID-19 D614G variant infection. Additionally, her chest CT demonstrated bilateral ground‐glass opacities. She received 2 infusions of off-label convalescent-anti-SARS-CoV-2-plasma [COVID‐19 convalescent plasma] 400mL over 2 days resulting in weaning of oxygen. However, a month later, she again developed similar episode with positive SARS‐Cov‐2 polymerase chain reaction (PCR) of bronchoalveolar lavage (BAL) and moderate to high viral excretion (cycle threshold <33 according to the real‐time reverse transcription‐PCR assay). Also, her transbronchial biopsies demonstrated a subacute interstitial inflammation with type 2 pneumocyte hypertrophy compatible with organising pneumonia. Her COVID-19 infection was attributed to rituximab, tacrolimus, mycophenolate mofetil and prednisone.

The girl again received off-label convalescent-anti-SARS-CoV-2-plasma and her prednisone dose was increased to 2 mg/kg/day. Six days later, her oxygen was weaned and prednisone was tapered gradually to 0.3 mg/kg/day over 4 months. However, her SARS‐Cov2 PCR remained positive in three consecutive BAL's for 4 months with same variant. During the COVID-19 episodes, she developed a **restrictive syndrome**. Her forced vital capacity (FVC) and forced expiratory volume in 1 second (FEV1) dropped from 2.52L (106%) and 1.94L (90%) before COVID-19 infection to 2.29L (96%) and 1.63L (76%) after the first episode; 1.43L (60%) and 1.34L (62%) after the second episode, respectively. Over the following 4 months, FVC and FEV1 increased and stabilised at 1.86L (78%) and 1.7L (79%), respectively. Simultaneously, she showed improvement and stabilisation of her CT‐scan findings indicating organising pneumonia.

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