Immunosuppressants

S

COVID-19 infection and cytomegalovirus infection: 5 case reports

In a case study involving 18 patients who underwent deceased-donor liver transplantation (DDLT) at a hospital in Brazil between March 2020 and May 2020, 5 patients (4 men and 1 woman) aged 34–69 years were described, who developed COVID-19 infection or cytomegalovirus infection while receiving immunosuppressive therapy with basiliximab, tacrolimus, mycophenolate, methylprednisolone, anti-thymocyte globulin or unspecified corticosteroids [*routes and dosages not stated*].

Case 1: A 69-years-old woman with hepatitis-C virus infection, underwent DDLT due to cirrhosis and hepatocellular carcinoma. Her medical history was significant for systemic arterial hypertension, coronary disease, and pulmonary hypertension. After the procedure, she was extubated on postoperative day-1 (POD-1). She received immunosuppression therapy with basiliximab, tacrolimus and mycophenolate. She also received unspecified intraoperative corticosteroids [corticoid] bolus with tampering. Her renal function worsened, and she required dialysis from POD-2. However, on POD-9, she was noted with mild dyspnoea, fever and diarrhoea. A thoracic CT-scan showed multiple bilateral ground-glass pulmonary opacities, occasionally associated with interlobular septa thickening and fine reticulate, affecting approximately 50% of the lung. Laboratory test showed C-reactive protein of 146.12 mg/L and D-dimer of 8477 ug/mL with tacrolimus serum level 10.8 ng/mL. A naso-oropharyngeal swab RT-PCR confirmed COVID-19 infection, which was considered as secondary her immunosuppressed status. Subsequently, she received off-label treatment with azithromycin, and also required renal replacement therapy. Her clinical condition worsened on POD-12 with the development of hypotension and massive dyspnoea requiring orotracheal intubation. Her immunosuppression therapy was discontinued, but she developed important haemodynamic instability. Eventually, she died on POD-13 due to refractory shock and acidosis.

Case 2: A 67-years-old man, who had non-alcoholic steatohepatitis, α1-antitripsin deficiency and hepatic encephalopathy, underwent DDLT. Other comorbidities included systemic arterial hypertension and obesity. He received immunosuppression therapy with basiliximab, tacrolimus and mycophenolate. He also received unspecified intraoperative corticosteroids [corticoid] bolus with tampering. The postoperative course was remarkable for persistent requirement of haemodialysis. On POD-26, mild elevation was noted in his liver enzymes. Serum PCR confirmed the diagnosis of cytomegalovirus infection. Hence, his treatment was started with ganciclovir. On POD-36, he was noted with fever, hypoactive delirium and progressive dyspnoea. Thoracic CT-scan showed several bilateral ground-glass pulmonary opacities affecting approximately 50% of the lungs. Due to persistent hypoxemia and respiratory discomfort, he required orotracheal intubation. Laboratory tests showed C-reactive protein of 226.01 mg/L and D-dimer of 19354 ug/mL, with tacrolimus serum level of 13.1 ng/mL. A RT-PCR in tracheal secretion confirmed the diagnosis of COVID-19 infection, which was considered as secondary his immunosuppressed status. Consequently, his treatment was started with large-spectrum antibiotics including meropenem and vancomycin as well as off-label treatment with oseltamivir, azithromycin, and hydroxychloroquine for 5 days. He also required renal replacement therapy. His immunosuppressant therapy was modified (mycophenolate was stopped and tacrolimus serum level was maintained at around 5 mg/dL). He remained on mechanical ventilation for 20 days. Ventilator associated pneumonia was diagnosed on POD-53 with multi-resistant Acinetobacter baumannii being identified on tracheal secretion. He was then started on colistin. His condition continued to deteriorate, and he died due to persistent hypoxemia and haemodynamic instability on POD-56.

Case 3: A 69-years-old man underwent DDLT due to alcoholic cirrhosis and hepatocellular carcinoma. Immunosuppression therapy consisted of tacrolimus along with unspecified intraoperative corticosteroids [corticoid] bolus with tampering. Other comorbidities included systemic arterial hypertension and diabetes mellitus. Postoperative course was uneventful, and he was discharged home on POD-8. However, on POD-10, he returned to the emergency department with complaints of fever, watery diarrhoea, dry cough and mild exertional dyspnoea. A thoracic CT-scan showed bilateral multiple ground-glass pulmonary opacities, affecting less than 50% of the lungs. Laboratory tests showed C-reactive protein of 96.3 mg/L and D-dimer of 4626 ug/mL with tacrolimus serum level of 13.3 ng/mL. A naso-oropharyngeal swab RT-PCR confirmed COVID-19 infection, which was considered as secondary to his immunosuppressed status. Hence, his treatment was started with off-label oseltamivir for 5 days. Broad spectrum antibiotics (piperacillin/tazobactam and metronidazole) were also started. Shortness of breath worsened on hospitalisation day-10. Repeat thoracic CT-scan showed an increase in the number and dimensions of ground-glass opacities, that affected more than 50% of the lungs. As he was able to maintain adequate level of oxygen saturation on venture mask 50%, no other interventions were added. Immunosuppression therapy was not modified. After improvement was noted, he was discharged home on hospitalisation day-17.

Case 4: A 59-years-old man, who had cryptogenic cirrhosis, underwent DDLT. Immunosuppression therapy consisted of mycophenolate and tacrolimus. He also received unspecified intraoperative corticosteroids [corticoid] bolus with tampering. He was extubated on POD-1. Haemodialysis was required from POD-4, and pulse methylprednisolone therapy was started on POD-6 for acute rejection treatment. On POD-11, he developed subfebrile temperature and dry cough. A thoracic CT-scan showed bilateral ground-glass pulmonary opacities, occasionally associated with thickening of interlobular septa and fine reticulate. A naso-oropharyngeal swab RT-PCR confirmed COVID-19 infection, which was considered as secondary to his immunosuppressed status. He received meropenen and vancomycin for three days. His mycophenolate therapy was discontinued. He did not require oxygen therapy, and showed satisfactory improvement. He was discharged home on POD-27.

Case 5: A 34-years-old man, who had sclerosing primary cholangitis and cirrhosis, underwent DDLT with biliodigestive anastomosis. He received immunosuppression therapy with tacrolimus and unspecified intraoperative corticosteroids [corticoid] bolus with tampering. Postoperative period was complicated by severe acute cellular rejection, which showed no response to treatment with pulse methylprednisolone therapy. Due to the methylprednisolone therapy-related acute cellular rejection, mycophenolate and anti-thymocyte globulin were added to the immunosuppression therapy. On POD-18, an abdominal CT scan was performed to check the presence of retained clot, which showed some ground-glass opacities in the base of the left lung. On POD-24, he developed fever and mild dyspnoea. A naso-oropharyngeal swab RT-PCR confirmed COVID-19 infection, which was considered as secondary to his immunosuppressed status. Thoracic CT-scan showed numerous bilateral peribronchovascular ground-glass opacities, mainly in the upper lobes. Near total atelectasis of the right lower lobe due to adjacent pleural effusion was also noted, that was drained via needle thoracocentesis. Immunosuppression therapy was not modified. He remained well with adequate oxygen saturation on oxygen catheter. He was discharged home on POD-41.

Waisberg DR, et al. Liver transplant recipients infected with SARS-CoV-2 in the early postoperative period: Lessons from a single center in the epicenter of the pandemic. Transplant Infectious Disease 23: e13418, No. 1, Feb 2021. Available from: URL: http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1399-3062