中文題目：新冠肺炎於器官移植患者：病患與醫師的挑戰

英文題目：COVID-19 infection in A Solid-organ Transplantation Recipient: Challenge to patient and physicians

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Introduction:

The overwhelming pandemic coronavirus disease 2019 (COVID-19) infection has caused more than 500 million infections worldwide with around 1% mortality. Though there are guidelines recommending the treatment for general population, the best treatment strategy of COVID-19 infection in immunocompromised patients, like solid organ transplant recipients remains to be determined. Their disease courses may be different from immunocompetent patients. Whether or when to administer immune-modulation agents like interleukin-6 inhibitor or corticosteroid in these patients is still an open question. In Taiwan, more than 20% population has got COVID-19 infection during omicron variants circulating in the society in 2022. We report a challenging case of COVID-19 infection, who is a heart transplantation recipient.

Case presentation:

A 68-year-old male with past history of dilated cardiomyopathy status post heart transplantation in 2018, type 2 diabetes mellitus, stage 3 chronic kidney disease and tuberculosis status post 9-month anti-TB treatment presented to emergency department (ED) with progressive dyspnea and fever for 4 days. He had regular mycophenolate mofetil (MMF), tacrolimus and prednisolone for heart transplantation but he did not receive any COVID-19 vaccine. He was confirmed to have COVID-19 infection by PCR, 2 weeks before visiting ED. Due to severe hypoxia, he had endotracheal intubation and chest radiograph revealed pleural based infiltrate, bilaterally. Arterial blood gas revealed PaO_2/FiO_2 ratio (P/F ratio) less than 200. Searching concurrent viral or bacterial infections was negative. Remdesivir, dexamethasone and tocilizumab were administered according treatment recommendation of Taiwan CDC in addition to piperacillin/tazobactam. He was admitted to ICU under the impression of acute respiratory distress syndrome and protective lung strategy in ventilator setting was used. Due to his underlying disease, and persistent hypoxia, antibiotic was revised to meropenem, teicoplanin and levofloxacin with prophylactic dose trimethoprim/sulfamethoxazole. Besides, MMF was held and drug level of tacrolimus was titrated to 0.5mg bid with target trough level of 3 ng/mL. As his oxygenation was less than 90%, venous-venous extracorporeal membranous oxygenation (VV-ECMO) was applied on day 11 of hospitalization. Anidulafungin was used and then revised to liposomal amphotericin B (Ambisome) on day 18 due to patch lesion in CXR and suspected fungal fragment in sputum gram stain. However, his condition deteriorated with bloody sputum and low urine output requiring

continuous renal replacement therapy(CRRT). Steroid was resumed due to severe hypoxia and fibrotic change in Chest CT follow-up and Ambisome was switched to isavuconazole due to elevating bilirubin. Sputum culture yielded *Purpureocillium lilacinum*, with intrinsic resistance to amphotericin B. His condition improved after adding steroid and antifungal agent adjustment. VV-ECMO was weaned on day 33. Ventilator was successfully removed on day 60.

Conclusion:

Solid organ transplantation recipients like our patient can present severe inflammation in lung after COVID-19 infection even though he had immunosuppressive agent after heart transplantation. Individualized therapy with steroid, cytokine inhibitor and tacrolimus and timely adjustment are challenging. Besides, nosocomial infection with bacteria and possible fungal infection may develop in these patient group. Multiple discipline team work is required in handling COVI-D19 with critical condition. Further study of treatment strategy in this patient group is warranted.