Cefepime/cotrimoxazole/immunosuppressants

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Ventilator-associated pneumonia, *Stenotrophomonas maltophilia* pneumonia and acute kidney injury: case report

A 64-year-old man developed ventilator-associated pneumonia (VAP), *Stenotrophomonas maltophilia* pneumonia and acute kidney injury (AKI) during immunosuppressive therapy with mycophenolic acid, prednisone or tacrolimus. Also, the AKI was secondary to cotrimoxazole and VAP due to S. maltophilia was associated with cefepime [*not all dosages stated; routes and durations of treatments to reactions onsets not stated*].

The man, who had a medical history of hypertension and type 2 diabetes, was referred to the emergency department with symptoms of recurrent fever, cough and progressive shortness of breath for 4 days. He was a kidney transplant recipient maintained on immunosuppressive drugs, which included tacrolimus 5mg two times a day, mycophenolic acid 250mg two times a day and prednisone 5 mg/day. Upon admission, his renal parameters were in the normal range. Relevant workup included a chest radiography, which showed diffuse interstitial and airspace opacities in the bilateral lungs, indicative of multifocal pneumonia. He also developed sepsis. He was found to be positive for SARS-CoV-2 infection. He was admitted to the ICU and was electively intubated due to his severe acute hypoxic respiratory failure and worsening respiratory status. For COVID-19 infection, he was initiated on compassionate use of hydroxychloroquine with azithromycin. While waiting for the final sputum culture report, he was also initiated on cefepime for broad antibiotic coverage due to the severity of his disease. His immunosuppressive drugs were adjusted and included the reduction of tacrolimus to 2.5mg two times a day, the continuation of prednisone at his home dose of 5 mg/day and suspension of mycophenolic acid. For mechanical ventilation, a low tidal volume lung-protective strategy was employed along with prone positioning and neuromuscular blockade with atracurium besilate [atracurium] under sedation. To maintain adequate oxygenation, high positive end-expiratory pressure therapy was also instituted. On day 3 of admission, his sputum sample was redrawn due to worsening results of the chest X-ray, hypoxaemia and increased endotracheal secretions. He was switched to methylprednisolone. On day 4 of admission, his sputum examination came back positive for gram-negative bacilli. On day 5, the automated culture with antibiogram showed *S. maltophilia*, which is sensitive only to trimethoprim/sulfamethoxazole [cotrimoxazole]. Thus, his antibiotic coverage was tailored to cotrimoxazole.

Therapy with cefepime was withdrawn. From day 7 onward, the man developed AKI with worsening serum creatinine and oliguria, which did not respond to continuation of his immunosuppressive drugs and fluid administration. He also developed worsening of sepsis and had haemodynamic instability. Cotrimoxazole was stopped on day 8 and changed to levofloxacin. His kidney function continued to deteriorate as indicated by an increase in serum creatinine on day 8, decrease in glomerular filtration rate and hyperkalaemia. Therefore, he was started on haemodialysis. As urinalysis did not show white cell casts or eosinophiluria, he was continued on the same dose of steroids as before. He was continued on supportive therapy along with mechanical ventilation and haemodialysis. Despite extensive medical care, his overall clinical status and oxygenation continued to decline. Owing to the poor prognosis, his family decided to proceed with comfort care measures, and he died on day 12 of hospitalisation [*immediate cause of death not stated*]. An autopsy was offered to his family, but they declined.

Mohamed MA, et al. Renal transplant recipient with concurrent COVID-19 and stenotrophomonas maltophilia pneumonia treated with trimethoprim/ sulfamethoxazole leading to acute kidney injury: A therapeutic dilemma. American Journal of Case Reports 21: 1-5, 2020. Available from: URL: http://doi.org/10.12659/AJCR.926464 803500790