Mycophenolate/prednisone/tacrolimus

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Guillain-Barre syndrome: case report

A 36-year-old man developed Guillain-Barre syndrome (GBS) during immunosuppressant treatment with mycophenolate, prednisone and tacrolimus.

The man, who had a medical history of two renal transplants (2009 and 2012) secondary to renal dysplasia and hypertension, was referred to the emergency department (ED) due to worsening respiratory distress. He was diagnosed with COVID-19 around 10 days previously. He was self-quarantined at home; however, the respiratory distress gradually progressed, prompting him to come to the ED. He had been receiving prednisone 5 mg/day, tacrolimus 2mg two times a day and mycophenolate 540mg two times a day for immunosuppression. When he was first diagnosed with COVID-19, the dose of mycophenolate was reduced to 360mg two times a day, and based on daily serum tacrolimus levels, his tacrolimus dosing was also adjusted. He was admitted for acute hypoxaemic respiratory failure necessitating supplemental oxygen via high-flow nasal cannula. Also, he received remdesivir. He showed a significant amelioration in his condition and was discharged after a hospital stay of 6 days with no home oxygen. He had no neurological deficits at the time of discharge. Two days following discharge, he began to develop numbness, tingling over his toes, perioral region and fingers, which then progressed to weakness in legs. Two days afterwards, he presented to the ED and was admitted for ascending and progressive weakness in his legs along with walking difficulty. Neurological examination showed intact cranial nerves, reduced muscle strength, intact sensations, hyporeflexia in lower extremities (LE), areflexia in LE and no evidence of ataxia. The albuminocytologic dissociation in CSF and constellation of neurological examination findings raised suspicion for acute inflammatory polyneuropathy. He was found to have moderate hyponatraemia on admission, urine studies were congruous with the syndrome of inappropriate antidiuretic hormone secretion, and it was gradually corrected over a few days. He was still positive for COVID-19.

On admission, the man was evaluated by a neurologist and initiated on immune globulin therapy for 5 days owing to the high suspicion for GBS [*durations of treatments to reaction onset not stated*]. However, he continued to have progressive weakness including bulbar involvement with soft speech and dysarthria. He continued to have worsening dyspnoea, and his chest X-ray revealed improving multifocal bilateral patchy pulmonary opacities. On day 6 of his recent hospitalisation, he developed increased work of breathing with a declining negative inspiratory force and vital capacity necessitating intubation for neuromuscular respiratory failure. Nerve conduction studies performed on the right upper and lower extremity showed reduced motor amplitude and conduction block between the ankle and knee for right tibial and peroneal motor conduction studies. The right median and ulnar motor conduction studies revealed normal distal latencies, decreased amplitude and prolonged F-wave latencies. The sensory responses of the right median, radial and ulnar nerves were absent with sural sparing. Needle electromyography was postponed as he was on sedation on the ventilator. Patchy, multifocal demyelination with unequivocal conduction block, sural sparing and prolonged F-wave latencies pointed toward acute inflammatory demyelinating polyneuropathy. Although he had completed a course of immune globulin, given his rapid decline, plasma exchange for 5 cycles was started with replacement with albumin and fresh frozen plasma. After receiving 5 plasma exchange treatments, he showed an amelioration from a respiratory and neuromuscular standpoint. His creatine kinase enzyme level was normal on admission, temporarily elevated up to 990 U/L while on propofol infusion, and quickly returned to normal within 2 days. His course was complicated by superimposed bacterial pneumonia from *Staphylococcus aureus and Haemophilus influenzae*, for which he received cefepime and vancomycin. On day 15 of the hospital stay, he was found to be negative for COVID-19. He necessitated mechanical ventilation for a total of 13 days. On day 19 hospitalisation, he was successfully extubated and was able to pass the spontaneous breathing trial. After extubation, his motor strength continued to ameliorate. He was discharged to a rehabilitation facility for physical therapy in a stable condition with no supplemental oxygen after a hospital stay of 23 days.

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