Multiple drugs

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Exacerbation of myasthenia gravis and lack of efficacy: 5 case reports

In an observational retrospective study of patients with myasthenia gravis (MG) admitted with acute COVID-19 infection and myasthenia exacerbation from May 2020 to April 2021 in Brazil, five patients including two women [aged 34-90 years; *not all sexes stated*] were described, who developed exacerbation of MG during treatment with polymixin-B, amikacin, gentamicin, hydroxychloroquine, azithromycin or clindamycin for MG, and received off-label treatment with hydroxychloroquine, azithromycin or oseltamivir for COVID-19. Additionally, two patients exhibited lack of efficacy with plasma while being treated for exacerbation of myasthenia gravis [*dosages, routes, durations of treatments to reaction onsets and outcomes not stated*].

Patient 1 (a 49-year-old woman): The woman was diagnosed with generalised myasthenia gravis (MG) since 2013, MGFA class IIa, had been treated with azathioprine, prednisone, and pyridostigmine. In 2015, she was diagnosed with thymoma and underwent thymectomy and radiotherapy. Subsequently, she was diagnosed with COVID-19 infection and was hospitalised. She received off-label hydroxychloroquine, oseltamivir and azithromycin. She had been also receiving polymyxin B, amikacin and gentamicin, along with various other drugs. Her comorbidity included obesity. After admission, dyspnoea got worse; ptosis and muscle weakness in four limbs were noted. Chest high-resolution CT scan revealed a pattern suggestive of COVID-19 pneumonia. She was transferred to an ICU. Azathioprine was suspended due to suspected associated bacterial infection; prednisone dosage was increased. Five days after admission, she had hypercapnic respiratory failure and required orotracheal intubation, remaining for 30 days under sedation and neuromuscular block. An exacerbation of MG was noted. During this period, she received 2 cycles (5 days each) of IV immune-globulin [immunoglobulin] at an interval of 21 days. After extensive treatment with antibiotics for bacterial pneumonia and sepsis due to azathioprine, she achieved clinical improvement but still needed prolonged mechanical ventilation through a tracheostomy. She was discharged 2 months after admission still using a tracheostome but without mechanical ventilation. She was decannulated thereafter and independent for activities of daily living, and returned to her previous treatment with azathioprine, pyridostigmine, and prednisone.

Patient 2 (a 90-year-old patient): The patient was diagnosed with generalised myasthenia gravis. The patient's comorbidities included hypertension and atrial fibrillation. Subsequently, the patient was diagnosed with COVID-19 infection and was admitted. The patient's medications included ceftriaxone, off-label azithromycin, piperacillin/tazobactam, meropenem, gentamicin, polymixin-B, amikacin, and vancomycin.

The patient was placed on mechanical ventilation and underwent neuromuscular block. However, the patient developed exacerbation of MG. Thereafter, the patient received immune-globulin for exacerbation of MG.

Patient 3 (a 34-year-old patient): The patient was diagnosed with generalised myasthenia gravis (MG). The patient was taking baseline treatment with azathioprine, prednisone, and pyridostigmine for MG. The patient had hypothyroidism. Subsequently, the patient was diagnosed with COVID-19 infection. The patient was placed on mechanical ventilation and underwent neuromuscular block. The patient's other drugs included off-label azithromycin and dexamethasone, piperacillin/tazobactam, and vancomycin. However, the patient developed exacerbation of MG. Thereafter, the patient received plasma exchange for exacerbation of MG. Eventually, the patient died thereafter.

Patient 4 (a 37-year-old woman): The woman presented with dysphagia, dysphonia, and post-prandial cough, followed by bilateral ptosis, diplopia, and mild dyspnea on exertion 3 months before initial presentation.

Her medical history was non-significant. After three months, she had sudden worsening of dyspnoea, needing supplementary oxygen, and was intubated the following day. Arterial blood gas analysis revealed hypercapnic respiratory failure. Subsequently, she was diagnosed with COVID-19 infection. CT scan confirmed COVID-19 pneumonia. Five days later, she was diagnosed with MG. She received off- label treatment dexamethasone treatment for COVID-19 pneumonia and was submitted to plasma exchange (PLEX). Anti-AChR and MuSK antibodies were negative, but a marked decremental response on RNS was present. She underwent tracheostomy and was successfully weaned off from mechanical ventilation. Her medications included, meropenem, cefepime, clindamycin, vancomycin, and off-label dexamethasone. One month after initial presentation, she had another exacerbation with worsening of ptosis, dyplopia, and dysphagia and received another five sessions of PLEX. Her MG was considered as refractory therefore, rituximab was initiated. One week after rituximab initiation, a clinical improvement was noted. Thereafter, she was decannulated, and discharged home on prednisone and pyridostigmine.

Patient 5 (a 51-year-old patient): The patient was diagnosed with generalised myasthenia gravis. The patient had hypertension. Subsequently, the patient was diagnosed with COVID-19 infection. The patient was placed on mechanical ventilation and underwent neuromuscular block.The patient's medications included, piperacillin/tazobactam, polymixin-B, anidulafungin, teicoplanin, levofloxacin, and off-label dexamethasone. However, the patient developed exacerbation of MG.

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