

Treatment of Refractory Myasthenia Gravis via Double-Filtration Plasmapheresis

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Introduction

Myasthenia Gravis (MG) is an autoimmune disease characterized by impaired neuromuscular transmission, with severe manifestations including respiratory difficulty and motor deficits. Double-Filtration Plasmapheresis (DFPP) sessions are useful for reducing antibody titer when pharmacological therapy is ineffective.

Methods

An 83-year-old patient with type III Myasthenia Gravis, seropositive for AChR and Anti-MuSK antibodies, was admitted to the neurology department in December 2023 for high-dose corticosteroid treatment. Due to an inadequate therapeutic response, Eculizumab 900 mg was initiated, without a favorable outcome. In February 2024, the patient's condition worsened, necessitating endotracheal intubation (IOT) and admission to the intensive care unit. Considering the criticality of his neurological condition, and assessing blood antibody levels (AChR RIA method 8.40 nmol/L; Anti-MuSK RIA method <0.01 nmol/L), a cycle of three DFPP sessions on alternate days was prescribed.

Results

After the first treatment, immediate clinical improvement was observed: the patient was awake and cooperative, intubated with good respiratory dynamics, and hemodynamically stable. He exhibited marked hyposthenia of the orbicular muscles, could lift his head a few centimeters for a few seconds, and maintained the Mingazzini I position for about 5 seconds with no spontaneous lower limb movements.

Following the second session, a further decrease in antibody titers was noted, along with progressive improvement in motor deficits: AChR RIA method 6.80 nmol/L; Anti-MuSK RIA method <0.01 nmol/L. The patient was awake and cooperative, undergoing weaning from IOT, following simple commands, lifting his head 20° from the bed, the right upper limb 120°, and the left upper limb 30°.

With the final treatment, a halving of baseline autoantibody levels was observed: AChR and Anti-MuSK 4.30 nmol/L and <0.01 nmol/L, respectively.

A total of 3500 ml of plasma were treated for each procedure. There was no need for PFC transfusion, and albumin levels remained stable throughout the sessions.

Conclusion

In this clinical case of Myasthenia Gravis refractory to pharmacological treatments, the application of the DFPP technique proved to be safe and effective in reducing antibody titer and improving the patient's neurological condition.