

Double Filtration Plasmapheresis for patients with autoimmune neurological disorders in ICU: a case series



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Introduction

Neurological autoimmune disorders may involve any part of the nervous system and can lead to demyelination or synaptic transmission impairment (1). B-cells have a key role in the pathophysiology, as they produce auto-antibodies (2). Plasmapheresis is a good tool for the treatment of these conditions. Double Filtration Plasmapheresis (DFP) is characterized by two kinds of filters with different pores size: a plasma separator (which separates blood into plasma and blood cells) and a plasma component separator (which separates plasma into large and small molecular weight components). Large molecular components, as immunoglobulins and cytokines are discarded, while small ones are returned to patient (3-4).

Methods

The Authors of the present study retrospectively analyzed patients affected by neurological autoimmune disorders, treated in Bologna IRCCS Intensive Care Unit, which received DFP. The Medical Research Council's (MRC) scale (range 0-60) was used to evaluate impaired muscular function, pre and post DFP treatment. Quantitative Myasthenia Gravis (QMG) scale (range 0-39) was used for patients affected by that disease. A t-test was performed to evaluate differences between these scales before and after DFP treatment.

Results

The enrolled population was composed by 9 patients, 3 females and 6 males, mean age was 55.33 (standard deviation, SD ± 23.09). 3 patients were affected by Guillain-Barré syndrome, 3 by autoimmune encephalopathy, 1 by autoimmune myelopathy, 2 by myasthenia gravis. DFP was used as first line of treatment in 55.55% of patients. 8 patients were submitted to invasive mechanical ventilation; 1 patient underwent non-invasive ventilation (patient with myasthenia gravis). The mean duration of mechanical ventilation was 24.55 days (SD ± 25.42); 8 out of 9 patients returned to spontaneous breathing. MRC was measured in 7 out of 9 patients: the pre- and post-treatment mean difference was 14.43, with a p-value of 0.049. QMG was measured in 2 out of 9 patients, with a pre- and post-treatment mean difference of -10.500, with a p-value of 0.258. 1 patient, with autoimmune myelopathy, didn't return to spontaneous breathing, nor to a good muscular function.

Conclusion

Despite the small sample size, DFP has shown clinical utility in the improvement of the muscular and respiratory function in patients with neurological autoimmune disorders.

References:

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