

## **Therapeutic Plasma Exchange Effect on Neuromyelitis Optica Spectrum Disorder Relapses**

### PLEX effect during NMOsd relapses

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#### **Introduction**

Neuromyelitis Optica Spectrum Disorders (NMOsd) are a group of inflammatory disorders of the CNS that are characterized by episodes of humoral-mediated inflammation usually associated with autoreactive antibodies against aquaporin-4 water channels (AQP4-IgG). Due to the strong humoral phenomena underlying NMOsd, plasma exchange (PLEX) has proved to be a beneficial therapy in patients with severe attacks.

#### **Methods**

In an observational and retrospective study, all NMOsd patients who were treated with PLEX during 2010-2019 were included. All patients received 5 doses of 1 gr/day methylprednisolone boluses. In discretion of the treating neurologist, PLEX could be started concomitant with the steroids. Non-parametric Wilcoxon test was used for evaluation of the median difference between the initial and the subsequent EDSS. P values  $\leq 0.05$  were considered statistically significant.

#### **Results**

A total of 89 patients treated with PLEX during a NMOsd attack were identified. 70 (78.7%) were female and 19 (21.3%) were male. The mean age at onset was 38 ( $\pm 12.97$ ) years. The clinical syndrome was ON in 14, bilateral ON in 6, LETM 25, STM 11, ON+LETM 1 and brainstem syndrome in 3 patients. 27 were previously known with a NMOsd diagnosis. The mean time in days from symptomatic onset to starting PLEX was 20.97 ( $\pm 18.16$ ) days. Mean number of PLEX exchanges was 5 ( $\pm 2.307$ ). A significant decrease with PLEX from a median EDSS of 6.5 (IQR 3.0) to 6.0 (IQR 3.0) was noted ( $p < 0.001$ ).

#### **Discussion**

In this large cohort of NMOsd patients with a relapse we found a significant decrease in the EDSS with treatment with Steroids and PLEX. In addition, we observed that the result was also correlated with the number of PLEX cycles received. The benefit of the PLEX maneuver was also independent of the clinical syndrome.

#### **Conclusion**

PLEX appears to be an effective therapy during relapses in NMOsd patients.