CLINICAL INVESTIGATION

Apheresis in Neurological Disorders Treatment

Submitted: 05 July 2021; Accepted: 15 July 2021; Published online: 25 July 2021

Erica Bronen*

Editorial Office, Clinical Investigation, London, UK

*Author for correspondence: clinicalinvestigation@escienceopen.com

Editorial

In a variety of medical sectors, Plasma Exchange (PE) and Immunoadsorption (IA) are important therapy alternatives for autoimmune illnesses. Their pathophysiological explanation is primarily focused on the removal of autoantibodies and the maintenance of a healthy immune system. Apheresis is a promising therapy strategy from a theoretical aspect since it works by eliminating pathogenic components rather than administering drugs that can have major side effects. The neurological indications include Multiple Sclerosis (MS) steroid-refractory recurrence, myasthenia gravis, Autoimmune Encephalitis (AE), Guillain-Barre Syndrome (GBS), and Chronic Inflammatory Demyelinating Polyneuropathy (CIDP). Although PE and IA are commonly used in clinical practice, there is little proof of their efficacy and safety in the aforementioned purposes. This is due to the fact that in most countries, pharmaceuticals and medical devices are considered differently when it comes to regulatory approvals, with indication-specific phase III studies being generally not necessary. As a result, little is known about the efficacy of PE and IA when compared to other treatment options and to one another. In the same way, there is a complete lack of knowledge on the optimum treatment regimens for PE and IA.

Methodological differences between Plasma Exchange and Immunoadsorption: Although both PE and IA are primarily focused on removing autoantibodies from the blood, it's important to remember that both methods imply additional immune-modulating mechanisms, such as up and downregulation of anti-inflammatory and pro-inflammatory proteins, as well as possibly other undiscovered alterations. Unlike PE, which removes all proteins from the plasma and replaces them with human albumin or fresh frozen plasma, IA is more selective, removing only immunoglobulin's while leaving the rest of the plasma alone. Since a result, IA may be a low-risk alternative to PE, as the preservation of coagulation factors should imply fewer bleeding issues, and since no volume replacement solution is required, allergic reactions should be avoided. However, for many purposes, evidence of efficacy for IA is even lower than for PE, which does not necessarily mean that IA is inferior to PE, but could simply be explained by the fact that IA is a newer technology with fewer clinical trials. Furthermore, when compared to PE, the retention of some pro-inflammatory proteins may reduce the efficacy of IA, which is an issue in autoimmune conditions such as MS and CIDP, where specific disease-related auto-antibodies have not been discovered in the majority of patients. As long as the immunological mechanisms underlying both illnesses and remedies are not understood, therapeutic decisions solely rely on the findings of clinical studies comparing alternative treatment alternativese.