Multiple Sclerosis

The only certain measure of the effectiveness of multiple sclerosis therapy is serum neurofilament level: con.

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Increased neurofilament light (NfL) levels reflect the degree of axonal damage occurring in the central nervous system (CNS), leading to their consideration as potential biomarkers for multiple sclerosis (MS), especially to evaluate treatment response. To date, most studies assessing the value of NfL levels were carried out using cerebrospinal fluid (CSF) samples, but lumbar puncture is a relatively invasive procedure that is performed mostly for diagnostic purposes and not for follow-up. Therefore, more recent studies have focused on the reliability of measuring NfL levels in serum. Different assays have been tested, and the most sensitive appears to be a single-molecule array (Simoa) assay. However, serum NfL levels cannot be currently considered the only certain measure of treatment efficacy for the following reasons: there is a need for technical standardization to allow a direct comparability between centres, studies, and possibly even different platforms, given the high cost of the Simoa technique renders it inaccessible to most institutions. Furthermore, in the daily clinical practice, a biomarker that can be classified as positive or negative is probably more useful and easy to interpret. Therefore, cut-off values should be established in healthy controls, should probably be stratified by age, and should be determined for the different treatments currently available for MS. Finally, the study population is small in most studies, so there is still a need for larger, longitudinal studies with a longer follow-up and availability of other clinical and radiological markers of treatment response, which itself may vary depending on the disease phenotype.