

microRNAs: A New Tool for Natalizumab Therapy in Multiple Sclerosis?

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ABSTRACT

The demand for biomarkers in Multiple Sclerosis (MS) is a subject of great interest in neuroimmunology. The use of biomarkers of therapeutic response is one of the most relevant issues in MS. The study of microRNAs (miRNAs) as possible biomarkers of MS treatment is increasing exponentially.

However, the demonstration of dysregulated miRNAs in B cells in MS still has few scientific articles. Fewer studies have studied the correlation between dysregulated miRNAs in B cells and natalizumab (NTZ) therapy. B cells demonstrate impact on the pathogenesis of MS, thus the study of miRNAs as possible biomarkers in these cells is of important clinical interest.

Our review provides the feasibility of miRNAs as possible biomarkers for the evaluation of clinical response during NTZ treatment, the risk for a CIS to evolve into a RRMS and the risk of PML during NTZ therapy. All of this is possible by analyzing expression profiles of miRNAs in MS patients. It may also help to delineate the molecular mechanisms in MS pathogenesis in future.

We summarized the major changes in the expression of each miRNA studied during NTZ therapy. We suggest and encourage further clinical researches to evaluate miRNAs as biomarkers of therapeutic response in MS during NTZ treatment. Therefore, is it possible microRNAs will be used in the future as biomarkers of therapeutic response in MS patients?

Keywords: microRNA, Natalizumab, Multiple sclerosis, Therapy, Biomarkers

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