Vitamin D and T cells in multiple sclerosis: how to measure an effect?

Multiple sclerosis (MS) is an inflammatory disease of the brain, leading to disability in patients suffering from this disease. A type of white blood cells, T cells, are important pathogenic cells which drive this inflammation in early MS. Several studies worldwide showed an association of a poor vitamin D status in the blood of MS patients with an adverse outcome of their disease regarding relapses or flares of disease and regarding disease activity on brain scans (MRI). These associations could be explained by many mechanisms, including a dampening effect of vitamin D on the disease process of MS. Clinical studies on vitamin D supplementation should be performed, to assess whether MS patients could benefit from this intervention.

In plastic dishes and laboratory animals, vitamin D guides T cells to a less inflammatory state. Whether this happens in MS is uncertain, but several studies assessed this hypothesis. Although the proper way to measure disease activity in MS is clear (relapses and MRI), the optimal approach to measure effect on T cells are less clear. Different kinds of T cells can be identified based on the inflammatory substances (called cytokines) which they make.

The point of our letter is that the selection of a single cytokine to measure this effects should be interpreted with caution. We do not know which cytokine is the most important in MS and probably it is rather the balance between multiple cytokines than a single cytokine which is important. This letter encourages researchers to provide a more integrated view, looking to multiple cytokines. This may be the most informative approach to learn more about the effects of vitamin D on the immune system of MS and prevents tunnel vision.

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