Neuropsychological Deficits in Multiple Sclerosis

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EDITORIAL

Multiple sclerosis (MS) is a common demyelinating disorder of the central nervous system, causing patches of sclerosis in the brain and spinal cord. Although its typical symptoms include visual loss, diplopia, nystagmus, dysarthria, weakness, paresthesia, bladder abnormalities, and mood alterations, the number of reports on neuropsychological deficits and related problems has increased. Many clinicians expect a rich future prospect with disclosure of neuropsychological deficits in MS for developing therapeutic approaches, either pharmacological or non-pharmacological. Despite much effort for integration, the knowledge around neuropsychological deficits of MS is still rather fragmented.

The first systematic review on this topic, as far as I know, was published in 1986 [1]. Dysfunction in memory, the most commonly interested domain of neuropsychological function, was reported [2-9], either on encoding (new learning) or on retrieval, however, the disease specific deficit has not yet been found. In stead, the decline in the speed of information processing was disclosed as the primary deficit in the patients with MS [10].

The deficits in speed of information processing in MS had been suggested since 1990s [3,5,11-13]. It was clearly demonstrated by Demaree HA et al. in 1999 as a key deficit in MS [10]. The primary concern in recent studies exists around the predominance of contribution of the information processing deficits. Genova et al. (2012) examined the extent to which processing speed (slowness) and/or working memory (inaccuracy and so on) contributed to an information processing deficit and demonstrated that processing speed was declined in MS [14]. However, Gmeindl (2012) demonstrated that patients with MS were abnormally slow in reorienting attention [15]. This slowness would cause not only deficits in information processing speed but also difficulties in a variety of neuropsychological functions.

In another stream of knowledge that impresses the importance of neuropsychological dysfunction in MS, there are fascinating reports that cognitive reserve in MS is gained through premorbid intellectual enrichment or rich intellectual leisure activities [16-17]. Contrary, fatigue and depression, often regarded as an indirect sign of neuropsychological dysfunction, was reported in patients with MS [18-21], which would be enlarged if their intellectual pleasure seeking efforts were blocked.

As reviewed above, we started from a global statement that “there exists some neuropsychological dysfunction in MS” and now reached to the point that the deficits in speed of information processing was detected as its core deficit. Furthermore, the difficulty in reorientation of attention was recently clarified as a cause of deficits in information processing speed. This refinement of the knowledge on neuropsychological deficits in MS would suggest to lead to a hypothetical configuration in rehabilitation guideline for MS, in which reorientation in attention should be supported for the patients to enhance their intellectual pleasure seeking activity, leading to the amelioration of depression as a secondary gain. Beside this hypothetical comment, if the knowledge concerning neuropsychological deficit specific to MS is gained more precisely, it would contribute for clinicians to develop the non-pharmacological therapeutic strategies, especially in making effective orientation for rehabilitation.

REFERENCES


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