Medical Xpress

Researchers explore efficacy of methylphenidate for mental fatigue in multiple sclerosis

December 17 2021

Credit: CC0 Public Domain

A team of researchers at Kessler Foundation studied the effects of methylphenidate on mental fatigue in individuals with multiple sclerosis

(MS). This is the first study to examine the psychostimulant's effects on 'state' vs 'trait' mental fatigue in MS. The article, "Methylphenidate may improve mental fatigue in individual with multiple sclerosis: A pilot clinical trial," was published online on September 20, 2021, by *Multiple Sclerosis and Related Disorders*.

The majority of individuals with MS experience physical and mental fatigue, a symptom that adversely affects their quality of life and contributes to disability. Mental fatigue, which is attributed to dopamine imbalance, may occur over time (trait fatigue) or at a defined moment (state fatigue). Methylphenidate, a psychostimulant that blocks catecholamine reuptake, including dopamine, alleviates fatigue in traumatic brain injury, Parkinson disease, and other neurological conditions. Evidence for the efficacy of psychostimulants for MS-related fatigue is inconclusive.

To assess the efficacy of methylphenidate for MS-related mental fatigue, Foundation researchers conducted a double-blind, placebo-controlled, crossover randomized control trial. Twelve participants with self-reported mental fatigue were tested for trait and state fatigue at baseline, after 4 weeks of methylphenidate, and after 4 weeks of placebo.

"We found improvement in "state" fatigue with methylphenidate, but no effect on "trait" fatigue," reported lead author Joman Y. Natsheh, MD, Ph.D., research lead at Children's Specialized Hospital and visiting scientist at Kessler Foundation.

The results suggest an important role for dopamine in MS-related mental fatigue. "Understanding the neurochemical basis of fatigue is fundamental to developing effective treatments," she added. "While the effect on "state" fatigue is encouraging, further investigation is needed to explore the lack of effect on "trait" in this study. Results may differ in studies with larger sample sizes, objective measures of fatigue, and

extended duration of methylphenidate administration."

More information: J.Y. Natsheh et al, Methylphenidate may improve mental fatigue in individuals with multiple sclerosis: A pilot clinical trial, *Multiple Sclerosis and Related Disorders* (2021). DOI: 10.1016/j.msard.2021.103273

Provided by Kessler Foundation