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Editorial

Neutraceuticals may supplement pharmaceutical treatment of neuropathic pain

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Neuropathic pain is a chronic disabling condition defined by the International Association for the Study of Pain (IASP) as "pain arising as a direct consequence of a lesion or disease affecting the somatosensory system" [1]. Patients suffering from this debilitating condition often complain of excruciating pain negatively affecting quality of life and are prone to physical and mental illness. Currently recommended first-line agents for pharmacologically managing neuropathic pain include tricyclic antidepressants, gabapentinoids, and serotonin-norepinephrine reuptake inhibitors [2]. However, a substantial proportion of patients do not respond optimally to these approaches and often experience intolerable side effects which may, in turn, worsen the disease burden. Despite recent advances in the understanding of the pathophysiological mechanism of pain, recent investigations failed to develop novel analgesics exhibiting superior efficacy and improved safety profiles compared to currently available medications [3] and treatment of chronic neuropathic pain still remains challenging. Given the opioid epidemics which have emerged recently in many countries [4–7], more than ever, alternative and complimentary approaches for effective and safe treatment of neuropathic pain are warranted. One of such approach may be the combination of nutritional support to the current medication strategy.

In this issue of the Korean Journal of Pain, Ramadhani et al. [8] reviewed the potential of Methylcobalamin (MeCbl), an active form of vitamin B12, as a therapeutic agent for chronic peripheral neuropathic pain. They described the relevant pathogenesis of neuropathic pain, and chemical structure, pharmacokinetics, and pharmacodynamics of MeCbl, and summarized the latest information regarding the action mechanisms and clinical trials of MeCbl as an alternative option for peripheral neuropathic pain treatment. Vitamin B12, or cobalamin, is a water-soluble vitamin which was initially discovered decades ago as an anemia-preventing substance isolated from liver extracts to treat patients suffering from pernicious anemia [9]. Later, it has become evident that vitamin B12 plays critical role in the nervous system function [10]. It has been used to manage some conditions, including B12 deficiency and Alzheimer's disease. As a supplementary agent, vitamin B12 improved functions regarding memory, emotion, and communication in patients with Alzheimer's disease. Vitamin B12 has also been found to play a key role in the regeneration and functional restoration of peripheral nerves by promoting the process of myelination [11,12]. Additionally, MeCbl showed protective effects against glutamate-induced

neurotoxicity and a marked inhibition of ectopic spontaneous discharge in chronic compression of the dorsal root ganglion in rats [10,13]. A summary of clinical trials suggests that MeCbl may be utilized as a supplementary agent for peripheral neuropathic pain [8]. It cannot be denied that heterogeneity exists among clinical trials of MeCbl regarding the dosages, combination regimens, administration routes, and etiologies for the neuropathic condition. Nonetheless, it is worthy to note the beneficial effects in select patients especially those suffering from intolerable side effects developing from conventional pharmacologic treatments, considering the safety profiles of MeCbl. The bioavailability profile of MeCbl is already known. Side effects developed during the clinical trials are typically well-tolerated with low incidence [8]. Interestingly, the efficacy of MeCbl is not limited to patients with vitamin B12 deficiency [14].

Considering that limitations are still exist in pharmacological treatment for neuropathic pain and that many patients are asking their physician which nutritional supplements are beneficial for their condition, time has come for the pain physicians to pay attention to the neutraceuticals to supplement pharmaceutical treatment for this debilitating disease.

DATA AVAILABILITY

Data sharing is not applicable to this article as no datasets were generated or analyzed for this paper.

CONFLICT OF INTEREST

Woong Mo Kim is a section editor of the Korean Journal of Pain; however, he has not been involved in the peer reviewer selection, evaluation, or decision process of this article. No other potential conflicts of interest relevant to this article were reported.

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