Letter to the Editor

Evaluation of serum brain-derived neurotrophic factor levels in Type 2 diabetes mellitus patients with and without depressive symptoms

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Dear Editor,

We read with great interest the article by Wang and He entitled ‘Levels of serum brain-derived neurotrophic factor in Type 2 diabetes mellitus patients with and without depressive symptoms’ in which the investigators reported that the serum brain-derived neurotrophic factor (BDNF) level was lower in Chinese Type 2 diabetes mellitus patients with or without depressive symptoms than that in healthy controls [1]. However, we think there are some points that should be discussed.

BDNF, which is one of the neurotrophic factors, plays an important role on the synaptic and survival of neurons in the central nervous system. Several previous studies suggested that certain diseases such as hypertension, epilepsy, bipolar disease, major depression, schizophrenia, Parkinson’s disease, Alzheimer’s disease, multiple sclerosis, migraine, chronic periodontitis, rheumatoid arthritis, cardiovascular disease, atherosclerosis, metabolic syndrome, chronic kidney disease, colorectal cancer, lower respiratory tract infection, and atopic diseases (allergic rhinitis, atopic dermatitis) could affect serum BDNF levels [2,3]. In addition to the above diseases, clopidogrel, corticosteroids, antidepressants, statins, antitumor necrosis factor alpha, and aspirin could also alter BDNF levels [4,5]. Furthermore, dietary food supplements such as vitamin B12, vitamin A, vitamin E, folic acid, omega-3 fatty acids, zinc, and ginkgo biloba extracts could influence BDNF levels [6,7]. In this regard, without defining these contributing factors, interpreting the results is problematic.

Serum BDNF levels were found to fluctuate during menstrual cycle. In follicular phase, BDNF levels were shown to be lower than that of luteal phase [8]. Begliuomini et al. [9] suggested that BDNF levels were higher in fertile women than that of women with amenorrhea or menopause. Maffioletti et al. [10] suggested that serum preparation procedure is a quite important issue for presenting robust methodology. Because of being stored in thrombocytes, BDNF level is highly affected by the duration of clotting process. They observed a progressive increase of serum BDNF levels, which reached 38% of the plateau value after 10 min, 91.8% after 30 min, and 100% after 1 h. Therefore, they suggested the minimum clotting duration for a correct serum BDNF dosage as 1 h. In the present study, the authors did not define sampling time, clotting period, or women’s menstrual status, which could cause falsely higher or lower serum BDNF levels.

Therefore, standardization of methodology is essential for the measurement of serum BDNF.

In conclusion, though this study contributes valuable information to the medical literature, clarifying these concerns will certainly provide a clearer picture when interpreting BDNF levels among participants.

References