Short communication   Open Access

Assessment of Cognitive Functions in Middle-Aged Patients with Type 2 Diabetes: A Short Communication

Valentyna Velychko, Daria Lahoda*

Department of Endocrinology, Odesa National Medical University, Odesa, Ukraine

***Corresponding author:** Mr. Daria Lahoda, Department of Endocrinology, Odesa National Medical University, Odesa, Ukraine, E-mail: dlagoda19@gmail.com

Description

Diabetes is a chronic metabolic disease characterized by hyperglycemia, which affects the functioning of various body systems. It is well known that Type 2 Diabetes Mellitus (T2DM) is a progressive, incurable condition and the goal of treatment is metabolic control and risk factor management to prevent vascular and neuropathic complications [1]. People with diabetes often develop a variety of microvascular, macrovascular, and neuropathic complications that impair quality of life, making diabetes a serious problem in most developed and developing countries. Population growth and an increase in sedentary lifestyles worldwide have led to an increase in the incidence of diabetes, with a projected 72% increase in the disease by 2030 [2].

Violation of insulin metabolism in patients with diabetes leads to widespread diseases of the retina, kidneys, cardiovascular and peripheral nervous systems, and also affects cognitive functions. High blood glucose not only causes brain malfunction, but also promotes the synthesis of sorbitol, which damages blood vessels and causes nerve degeneration. Oxidative stress, microvascular vasculopathy, inflammation, and dyslipidemia are other key mediators leading to neuropathology that can lead to dementia or cognitive impairment [1]. A patient can be said to have cognitive impairment when he has difficulty remembering, learning new things, concentrating, or making decisions that affect daily life [3]. Cognitive impairment, especially for people with chronic conditions, is likely to be a barrier to providing appropriate medical care, as patients' understanding of the need for treatment, regular follow-up, and self-care may be limited by cognitive dysfunction [4]. Cognitive functions that support complex behaviors are particularly important for T2DM patients. Cognitive impairment can lead to non-compliance with treatment recommendations. Patients with cognitive deficits may be at increased risk of treatment complications (example: skipping meals leading to hypoglycemia, or incorrect dose or timing of insulin injections and/or oral medications). Cognitive impairment also increases the risk of major cardiovascular events and all-cause mortality [1,5].

Research on the relationship between cognitive impairment and T2DM continues in various research centers due to conflicting reports. The fact that different groups of researchers use different tests to assess the cognitive function of patients can lead to such results. Therefore, in our study we used several tests to compare the obtained results. We used MMSE and Montreal Cognitive Assessment tests. In addition, it is important to detect Anxiety-Depressive Disorders (ADD) in patients with T2DM. Because it is known that Total Diet Replacement (TDR) affects the patient's cognitive function and the course of T2DM. In our study, we also used several tests, namely the Hospital Anxiety and Depression Scale (HADS) and the Beck Depression Scale (BDS) [6].

Conclusion

Our study focuses on the features of cognitive changes in middle-aged patients with Type 2 Diabetes Mellitus (T2DM). The study was conducted in accordance with the terms of bioethics at the Odessa National Medical University. In the course of the study, we found that the vast majority of patients with T2DM had cognitive impairment. It was found that patients with T2DM develop cognitive impairment earlier than their peers without T2DM. The published results of the study are intermediate, since the research is still ongoing. The goal of further research is the organization of training for patients living with T2DM in diabetes schools. Programs at the School will be developed for patients depending on their cognitive characteristics.

Acknowledgement

Conflict of Interest

The author has no conflict of interest to report.

References

1. Yerrapragada DB, Rao CR, Karunakaran K, Lee HS (2019). Cognitive dysfunction among adults with type 2 diabetes mellitus in Karnataka, India. Ochsner J 19(3):227-234.

2. Kapoor D, Bhardwaj AK, Kumar D, Raina SK (2014). Prevalence of diabetes mellitus and its risk factors among permanently settled tribal individuals in tribal and urban areas in northern state of sub-Himalayan region of India. Int J Chronic Dis 2014:380597-380597.

3. (2016). Cognitive Impairment: A Call for Action Now. CDC

4. Alosco ML, Spitznagel MB, van Dulmen M, Raz N, Cohen R, et al. (2012). Cognitive function and treatment adherence in older adults with heart failure. Psychosom Med 74(9):965-973.

5. Ravona-Springer R, Schnaider-Beeri M (2011). The association of diabetes and dementia and possible implications for nondiabetic populations. Expert Rev Neurother 11(11):1609-1617.

6. Velychko V, Mykhailenko VL, Tuliantseva YO, Lahoda D, Danylchuk HO, et al. (2022). Assessment of cognitive functions in middle-aged patients with type 2 diabetes. Reproductive Endocrinology 2022(65): 113-117.