COGNITIVE DYSFUNCTION IN PATIENTS WITH DIABETES MELLITUS

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Diabetes mellitus (DM), as a widespread and socially significant disease, affects the quality, level and duration of human life. The combination of metabolic disorders – chronic hyperglycemia, dyslipidemia, the development of hypertension and microcirculatory disorders, increases the risk of cognitive disorders as manifestations of brain dysfunction in diabetes mellitus.

The purpose of this work was to study cognitive functions in patients with type 1 and type 2 diabetes mellitus.

Materials and methods. 40 patients with type 1 and type 2 diabetes were examined at the RNCMP BF clinic, of which: 10 people with type 1 diabetes (25%), 30 people with type 2 diabetes (75%). Among the examined there were 26 women (65%) and 14 men (35%) aged from 23 to 79 years (cf. age – 57± 1.8 years) and with a disease duration from 2 to 47 years (cf. length of illness – 16± 1.1 years). The control group consisted of 23 people without diabetes mellitus, correlated by age and gender.

To study cognitive function, tests were conducted on the Montreal Scale (MoCA) for evaluating cognitive functions (creation of an alternating pathway, visual-constructive skills – drawing a cube and a clock, naming, memory, attention, fluency of speech, abstraction, delayed reproduction, orientation), analysis of laboratory parameters (HbA1c, cholesterol, creatinine). A total score above 26 in the Mos was taken as a normal result, values below were regarded as a manifestation of cognitive dysfunction. Statistical processing of the results was carried out using the Microsoft Excel program.

Results and discussion. According to the Montreal Scale, 10 (25%) patients with DM had normal indicators, 30 (75%) had low indicators, indicating the presence of cognitive impairment. In the control group, 16 (69.6%) of the examined patients had normal indicators, and 7 (30.4%) showed signs of cognitive dysfunction. The average score on the Mooca scale in patients with DM was 24±0.3 and significantly differed from the indicators of the control group ($p= 0.01$). There were no statistically significant differences in the values of the average score between patients with type 1 and type 2 diabetes.

The severity of cognitive deficits in the group of DM patients correlated with age ($r=-0.31$), no such relationship was found in the control group. In the group of patients with DM, the dependence of the degree of cognitive decline on the indicators of DM compensation was revealed – high HbA1c indicators were associated with low indicators when tested according to MoHS ($r=-0.33$, $p<0.05$). The average Hba1c level was 8.5±0.2%, 60% of the examined patients had DM decompensation. Among the examined patients with DM, mild and moderate cognitive impairment was noted, and no cases of dementia were detected.The analysis of the test revealed that patients with DM have difficulties in the following tasks of the scale: creation of an alternating pathway (20%); visual-constructive skills: clock (92.5%); serial subtraction (25%); fluency of speech (45%); delayed reproduction (82.5%). There were no difficulties in completing the other tasks. In

the control group, difficulties were identified in the following tasks: visual-constructive skills: clock (69.6%); serial subtraction (21.7%); fluency of speech (17.4%); delayed reproduction (78.3%).

Thus, cognitive dysfunction in DM patients is detected in 75% of cases, correlates with age and the degree of DM compensation, which can serve as a basis for conducting a neuropsychological examination of these patients in order to early identify and correct cognitive impairment.

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