American Journal of Medicine and Medical Sciences 2022, 12(2): 93-95
DOI: 10.5923/j.ajmms.20221202.05

The Nature of Cognitive Changes and Quality of Life in Patients with Diabetes Mellitus, Taking into Account the Therapy

Djurabekova Aziza Takhirovna, Fatullaeva Dildora Sayfullaevna, Shaimatov Rakhmonberdi Uktamovich, Gaibiev Akmaljon Akhmatovich

Department of Neurology Samarkand Medical Institute, Uzbekistan

Abstract Achievements in the field of diagnosis and treatment of patients with diabetes mellitus (DM) are very high at the moment. Diabetes mellitus is a chronic disease that requires adherence to certain lifestyle rules, slowly progressing, leading to disability due to long-term complications. Damage to the CSF is complicated by retinopathy, renal failure, diabetic encephalopathy and diabetic polyneuropathy [1,3]. It has been proven that timely and early diagnosis and glucose control can reduce both the aggressiveness of the disease itself and the risk of complications.

Keywords Diabetes mellitus, Diabetic encephalopathy, Diabetic polyneuropathy, Glucose control

1. Introduction

There is a reliable diagnostic study for the definition of diabetes - this is the detection of glucose in the blood (glycemic control), and an important reliable method of replacement therapy for diabetes is insulin therapy, but despite the advances in this direction, there are no clear standard recommendations, patients are looking for an easier way of treatment, according to their considered more acceptable, the use of tabularized forms of stabilization of blood sugar [2,4]. In this regard, it is necessary to analyze patients with Diabetes mellitus for the presence of cognitive and psycho-emotional complications that affect the quality of life of patients, depending on the duration of the disease and the therapy they use, to improve and stabilize glycemia.

To study the nature of cognitive, psych emotional changes and the quality of life in patients with diabetes, taking into account the therapy used to correct glycemia.

2. Material and Research Methods

Based on the goal, the recruitment of patients was carried out on the basis of the 1st clinic of the Samarkand Medical institute Department of Therapy, Cardiology, Neurology for the period 2020-2021. In accordance with the criteria for the inclusion of patients, 68 people aged 20-50 years were studied. The inclusion criteria for the study were the presence of type 2 diabetes mellitus with a disease duration of more than 5 years. An agreement was drawn up with the patients to participate in the study of their clinical, neurological and emotional state. The patients were divided into two groups, depending on the therapy received, to stabilize blood glucose. The study included collection of anamneses, detailed description of complaints, clinical, neurological and somatic status at the time of hospitalization. An important point was the identification of cognitive changes, for this a neuropsychological survey was meticulously conducted using the MMSE, MOCA, “10 words” tests, the HADS scale (excluding anxiety and depression). In the process of studying patients, it became necessary to determine the quality of life, using the standard SF-36 questionnaire, with an assessment of physical and mental health. Statistical analysis of the results obtained in the course of the work was recorded on an individual computer, using the standard Student's criteria and Spearman's rank correlation coefficient; $p < 0.05$ was taken as the level of statistical significance.

Received: Jan. 8, 2022; Accepted: Jan. 30, 2022; Published: Feb. 15, 2022
Published online at http://journal.sapub.org/ajmms

3. Research Results

The examination included patients from among patients with type 2 diabetes mellitus, divided into two groups depending on the type of therapy used, which improves blood sugar levels, 68 total number of patients, group 1 - 32 of whom took insulin therapy in the form of subcutaneous injections, group 2 - 36, received per os the drug "Metformin" 1 g (2 tab.) 2-3 times a day after meals. The

ratio of men is 39%, women are 61%, respectively. The average age of the patients was 33.5 years. The duration of diabetes mellitus is from 5 to 10 years. The main complaints presented by patients are headache, a feeling of heaviness in the head; dizziness, decreased memory and attention, emotional lability, anxiety for their health. As for the complaints of polyneuritis disorders, this is numbness or burning sensation in the extremities, especially in the legs, cramps in the calf muscles, the extremities were cold to the touch, swelling in the legs by the end of the day (Table 1).

Table 1. The main complaints in the examined patients (%)

Complaints	**1 group** [n = 32]	**Group 2** [n = 36]
Headache	20	35
Heaviness in the head	-	16
Increased fatigue	5	19
Decreased performance	4	14
Decreased emotional background	8	9
Decreased memory	-	16
Numbness in the lower extremities	6	32
Paresthesias in the lower extremities	-	18
Burning sensation in the lower extremities	-	16
Cramps in the calf muscles	10	26
Pain in the lower extremities	8	28
Hyperhidrosis of the trunk	2	8

On the part of the neurological status, during the examination, a decrease in reflexes was found in 10% of carpal reflexes, in 12% of Achilles reflexes. Sensitivity disorders of the polyneuritis type were pronounced, which coincides with the literature data; in 97% of both groups, hypesthesia in the lower extremities was noted. Thus, no gross focal symptoms from the central nervous system were found, despite the predominance of subjective complaints, polyneuritis symptoms predominated, especially in group 2.

Analysis of the test results revealed significant differences between the groups. In order to identify changes in the mental status of the examined patients, depending on the therapy they were taking, the MMSE study was carried out. In the first group, patients scored 28 points, the lower limit of compliance with the normative level in the second group is 26.3 on average, which corresponds to mild cognitive impairment. The MOCA scale was used to assess the differentiation of individual cognitive functions. And again, revealed in the first group the lower limit of the norm of points, in contrast to the second group, where the indicators were below 24 points. At the same time, it was noted that the function of short-term memory in the second group was significantly changed in contrast to the first group. Attention in both groups differed significantly at $p < 0.05$. In the second group, patients more often made mistakes when completing the task. The function of gnosis in both examined groups was preserved, as was the spatial orientation in accordance with the norm (tab. 2).

Table 2. MoCA indicators in the surveyed

MoCA	1 group [n = 32]	Group 2 [n = 36]
Attention	4	2
Naming	3	3
Memory	5	3
Speech	2	0
Visual constructive skills	4	2
Abstraction	2	0
Delayed playback	3	0
Orientation	5	4

According to the results of the Wechsler test, a significant difference was found ($p < 0.05$). If in the first group the value averaged 23 points, then in the second group the indicator corresponded to 16 points, the speed of logical reasoning in the first group was 35% higher. Traditionally, the 10 words test (Luria) was used to test short-term and long-term memory between groups (Table 3).

Table 3. Results of the test "10 words" in groups

Test "10 words"	1 group [n = 32]	Group 2 [n = 36]
1 attempt	6 ± 1	4 ± 1
Word count after 30 minutes	7 ± 1	5 ± 2

This testing found a high rate in the first group, compared with the second group by 26% in the first attempt and in the second by 30%. To clarify the indicator of anxiety and depression, that is, to assess the psych emotional state of patients, the HADS scale was used. The indicator of anxiety, like depression, again turned out to be more favorable in the first group, in the second group the values were with moderate impairments. Without stopping at what has been achieved, taking into account the above research data, the question of the quality of life of patients arises. The result of the study was carried out using the standard self-assessment questionnaire SF-36, which allows you to see the physical and psycho-emotional components in the aggregate (Table 4).

Table 4. The results of indicators in the studied groups on the SF-36 scale

SF-36 (points)	1 group [n = 32]	Group 2 [n = 36]
Physical functioning	95 ± 4	74 ± 2
Pain intensity	82 ± 15	63 ± 15
General health	55 ± 20	42 ± 15
The physical component of health	52 ± 5	45 ± 5
Emotional functioning	89 ± 20	52 ± 22
Mental health	67 ± 20	60 ± 15

Thus, the quality of life of patients in both groups depends on the emotional state (patients are worried about their own health and the fear of the possibility of becoming disabled). The presence of a relationship between cognitive impairment and quality of life, revealed in patients with a longer illness and using the drug "Metformin", a weak correlation between

the MOCA and SF-36 values.

Thus, the analysis of the study of patients with type 2 diabetes mellitus, for the presence of clinical and neurological changes depending on the therapy received to stabilize blood glucose, showed that in patients with a longer period of illness who used Metformin in therapy, it was noted above the degree of cognitive and psych emotional changes, and in its structure brought the patient data closer to the diagnosis of diabetic encephalopathy. At the same time, in this (group 2), a high level of anxiety was noted, being a factor determining a decrease in the quality of life.

4. Conclusions

1. Examination of patients with type 2 diabetes mellitus for the presence of cognitive and psycho-emotional changes as factors affecting the quality of life can serve as the basis for larger clinical trials.
2. A comparative analysis of patients with type 2 diabetes mellitus, depending on the therapy they used to correct blood glucose, showed the effective use of insulin therapy, since patients who used Metformin were in a worse position in terms of cognitive, psych emotional and quality of life, since the drug they was used in violation of the regimen, sometimes at a lower concentration (patients artificially reduced the amount of drug intake), while patients using insulin therapy strictly adhered to the schedule of receiving therapy.
3. From the questionnaires used, in our opinion, testing according to MOCA and SF-36 showed a sufficiently high and effective diagnostic sensitivity for screening the severity of "Diabetic encephalopathy".

REFERENCES

[1] Kislyak O.A., Myshlyaeva T.O., Malysheva N.V. Type 2 diabetes mellitus, arterial hypertension and the risk of cardiovascular complications. Diabetes. 2008; 11 (1): 45-49.

[2] Demidova T.Y. Vascular complications of type 2 diabetes mellitus beyond glycemic control. Diabetes. 2010; 13 (3): 111-116. https://doi.org/10.14341/2072-0351-5498.

[3] Clinical guidelines Type 2 diabetes mellitus in adults // 2019, p. 290.

[4] *AA Gaybiev, Djurabekova the AT, the SS Igamova* BOLALARDA DIABETIK POLINEVROPATIYA PATOG ENEZIDA of HLA FAKTORINING XUSUSIYATLARI // Uzbekistonda ilmy Amalie tadkikotlar mavzusidagi Republic 22 kup tarmokli ilmy masofavy online materiallari Conference, November 2020. Tashkent, 8-13 P.

[5] Akhmatova G.R. Morphofunctional state of the formation of the immune system of the mucous membrane of the small intestine. World Journal of Pharmaceutical Research SJIF Impact Factor 8.084 Volume 9, Issue 9, 117-122. Review Article ISSN 2277– 7105.