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ASSESING THE EFFECTIVENESS OF TREATMENT FOR MIGRAINE PATIENTS USING THE MIGREN PRO MOBILE APPLICATION

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ABSTRACT

The article illustrates evaluating the effectiveness of treatment in patients using a mobile application in the treatment and controlling the migraine. The aim of the study is to improve migraine behavioral skills and knowledge in patients who use the mobile application, to control medication intake, and to achieve the effectiveness of treatment without other additional drugs by monitoring the elimination of migraine triggers on a daily basis. During the research, 88 (100%) patients were observed. The patients were divided into two groups, the patients of the first group were recommended daily monitoring of migraine in paper form, and the patients of the second group were recommended the "MIGREN PRO" mobile application. All patients were re-examined after 3 months. In patients who used the mobile application, the number and duration of headache decreased, cognitive functions were restored, the level of depression decreased, and the quality of life improved.

Key words: migraine, prevention, depression, mobile app, cognitive disorders, diagnosis, headache.

INTRODUCTION

Migraine is a primary headache disorder affecting 15% of people worldwide [1]. According to the results of a 2015 study, among patients under the age of 50, migraine was the main cause of disability [2]. Migraine affects the daily work performance of patients and lowers the quality of life, leading to incapacity for work [3].

In migraine, the level of pain, intensity, number of attacks, depression, sleep disorders are directly related to cognitive disorders [4]. Building behavioral skills

and knowledge for migraine patients can reduce migraine frequency and duration, manage patients during attacks, reduce headache-related disability, and reduce overuse of pharmacologic medications. is to prevent abuse [5]. Therefore, in their experiments, scientists have proven that self-management programs are effective in the treatment of migraine [6]. Such programs allow patients to gain more information about the disease, make changes in its course, and develop behavioral skills and knowledge to manage migraine on a daily basis [7].

During development, the emergence of electronic headache diaries and calendar control methods makes it easier to obtain detailed information. Adherence to headache diaries, including electronic mobile applications, improves treatment efficacy by 46% [8].

During the research, we developed a mobile application **"MIGREN PRO"** for patients diagnosed with migraine. The application is in the Uzbek language and consists of the following components:

1. Patient general information.
2. Educational part.
3. "My headache" page - where patients are monitored monthly, 3-month headache status by answering the prescribed questions.
4. Control of drugs recommended by the doctor in the "Control of drugs" section.
5. "Questionnaire" - on this page, patients are presented with the MIDAS scale for assessing daily functioning, and the PhQ-9 scale for determining the level of depression. Patients fill out questionnaires before and after treatment, and the effectiveness of treatment is evaluated.
6. Notes on migraine triggers (sleep mode, foods, medications, etc.) are provided on the "Reminder" page.
7. The application has two download options (for Android and Apple (iOS)).

Purpose of the study. Evaluating the effectiveness of a mobile application based on information technology on the level of headache and depression in patients diagnosed with migraine.

Research methods and materials. 88 patients with a diagnosis of migraine were observed in our control, the average age was 35.4±9.9 years. 71 (78%) of the patients were women, 17 (22%) were men. Neurological status, electroencephalogram (EEG), magnetic resonance imaging (MRI) examinations were performed in all patients during the treatment, the headache level was assessed on the VASH scale, the PHQ-9 was used to assess the depression level, and the RAVLT questionnaire was used to determine the impairment of cognitive functions. From the first day of treatment, antidepressants, nonsteroidal anti-

inflammatory drugs, general strengthening drugs, triptan drugs, and symptomatic treatment were prescribed to all patients as basic therapy. 44 patients in the first group were given a paper control diary, and 44 patients in the second group were given an electronic control diary in the form of a mobile application.

The results. Migraine with aura was detected in 15 (17%) patients, and migraine without aura in 73 (83%) patients. Common changes in the neurological status were found in all patients. According to the results of the MRI scan, 51 patients (58%) had small subcortical foci in the brain, 37 patients (42%) had hemodynamically insignificant changes. In the EEG examination, general changes related to the brain were found in all patients.

Before treatment in all patients, the average headache level was 10±0 points in both groups, the average PHQ-9 depression level was 10.45±0.3 points in patients in group 1, and 10.5 in patients in group 2. It was ±0.6 points. According to the RAVLT questionnaire, patients in groups 1 and 2 remembered an average of 6-7 out of 15 words (Table 1).

After medical procedures, the level, intensity, and number of attacks of headache in patients decreased dynamically. According to the VASH scale, the headache level decreased by an average of 6.5±1.1 points in group I patients, and by an average of 5.3±0.8 points in group II patients, according to the PHQ-9 scale, the average 4.1±1.3 points on average in 1st grade, 16.5±5.2 points in 2 groups, 9 words in 1 group, 13 words in 2 groups were remembered in the RAVLT questionnaire (Table 1).

Table 1

	Before treatment			**After treatment**		
	VASH	***PhQ-9***	***RAVLT***	***VASH***	***PhQ-9***	***RAVLT***
I group	10±0 point	10,45±0,3	6-7 words	6,5±1,1	4,1±1,3	9 words
II group	10±0 point	10,5±0,6	6-7 words	5,3±0,8	16,5±5,2	13 words

According to the results, before the treatment, all the patients had a high level of headache, depression and cognitive dysfunction, and after the treatment, the indicators improved in the second group of patients who used the mobile application.

CONCLUSION

Migraines are more common in middle-aged women. In their treatment, the mobile application used in addition to the standard medical procedures reduced the

migraine headache level (average 5.3±0.8 points), intensity, number of attacks, improved depression level by 82.5% and improved cognitive functions. It showed its effectiveness in recovery to 86%.

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