

Assessment of the "quality of life" in patients with essential hypertension as a result of the course photochromotherapy

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The life quality assessment of patients with essential hypertension as a result of the photochromotherapy

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SUMMARY

The paper considers the use of photochromotherapy in the treatment of patients with arterial hypertension of 2 and 3 degrees at the age of 70 ± 2.5 years. The positive effect of green light photochromotherapy on the quality of life of such patients was shown using the SF-36 questionnaire.

Key words: arterial hypertension, quality of life, physiotherapy, photochromotherapy, SF-36.

RESUME

The use of photochromotherapy method for the treatment of patients with hypertension grade 2 and 3 at the age of 70 ± 2.5 years is described. The positive effect of the green light photochromotherapy on the patient's life quality is observed via SF-36 survey.

Keywords: arterial hypertension, life quality, photochromotherapy, physiotherapy, SF-36.

Introduction

Hypertension (HD) is a common cardiovascular disease that significantly reduces the quality of life of patients [1]. In 1948, WHO defined "health" as "a state of complete physical, mental and social well-being, not just the absence of illness or disability." Currently, new methods for assessing the health status of the population are being developed, complementing such traditional indicators as morbidity and mortality. In this series, methods for assessing the quality of life (QOL) occupy one of the first places [2].

When studying the quality of life of patients with hypertension, the concept of "ring dependence" deserves the concept of somatic and mental disorders resulting from this disease as a single pathological process in which a vicious circle of mutual influence of somatic disorders and mental disorders occurs [3].

Clinical symptoms of the disease, such as pain, decreased exercise tolerance, side effects of long-term use of different groups of drugs, a combination of manifestations of several combined somatic diseases, physical, mental and social limitations, make it extremely important to assess the integral QoL indicator as a criterion for the effectiveness of treatment. ... It has been proven that the factors that improve the quality of life are training physical activity, balneotherapy, physiotherapy, which contribute to the reduction of cardiovascular complications [4, 5].

The aim of this work was to study the QoL in patients with hypertension before and after the application of the method. photochromotherapy with green light in order to assess the effectiveness of this method.

Materials and research methods

Two groups of patients with grade 2–3 hypertension were formed: the main group (47 people), whose patients underwent drug treatment in combination with a course of photochromotherapy, and the control group (24 people), where patients received only drug treatment according to the standard scheme.

The duration of the disease for patients in both groups was 12 ± 3.2 years. The average age for patients in the main group was 71.3 ± 1.9 years, and for patients in the control group - 68.7 ± 2.4 years.

Photochromotherapy procedures were performed using the Spectr-LC02 apparatus with a wavelength of 540 nm on the C4-Th4 reflex-segmental zone in a course of 10 sessions, 5 minutes per field [6]. When the radiation energy is absorbed, the pulsed activity of thermomechanically sensitive fibers changes, segmental reflex and local reactions of the microvasculature are activated [7]. It has been established that green radiation is selectively absorbed by flavoproteins of the respiratory chain and protein complexes of calcium ions, changing the processes of cellular respiration in tissues [8, 9].

The study of QOL was carried out using the "SF-36" questionnaire. All items on the questionnaire are grouped into eight scales: physical functioning, role-playing activity, bodily pain, general health, vitality, social functioning, emotional state, and mental health. The scores on each scale range from 0 to 100, with 100 representing overall health. All scales form two indicators: mental and physical well-being. The assessment of the general condition was carried out in all patients of the main and control groups before and after the treatment.

Results and discussion

The results of treatment in the main and control groups are presented below in table. 1 and 2, respectively.

The Physical Functioning (PF) indicator in the main group was 48.82 points before treatment and 68.5 points after treatment ($p < 0.05$). In the control group - 55.20 and 60.41, respectively ($p > 0.05$).

Table 1

Treatment results in the main group of patients

Основная группа до и после лечения								
	PF	RP	BP	GH	VT	SF	RE	MH
До лечения (баллы)	48,82979	32,44681	50,57447	50,65957	47,34043	52,12766	40,42553	49,70213
После лечения (баллы)	68,40426	66,48936	48,89362	59,17021	50,53191	75,79787	58,86525	55,65957
Дельты (баллы)	19,57447	34,04255	-1,68085	8,510638	3,191489	23,67021	18,43972	5,957447
Достоверность различий (p)	0,0001*	0,0001*	0,570416	0,03882*	0,20969	0,0001*	0,00879*	0,00179*

* – Различия достоверны

table 2

Treatment results in the control group of patients

Контрольная группа до и после лечения								
	PF	RP	BP	GH	VT	SF	RE	MH
До лечения (баллы)	55,20833	23,95833	38,91667	38,70833	41,875	57,8125	26,38889	57,83333
После лечения (баллы)	60,41667	29,16667	45,41667	51,25	45,83333	61,45833	40,27778	54
Дельты (баллы)	5,208333	5,208333	6,5	12,54167	3,958333	3,645833	13,88889	-3,83333
Достоверность различий (p)	0,427638	0,627405	0,094089	0,01991*	0,396	0,523223	0,285226	0,352372

* – Различия достоверны

The Role-Physical Functioning (RP) indicator in the main group was 32.44 points before treatment and 66.4 points after treatment ($p < 0.05$), which can be interpreted as restoration of role activity in performing everyday responsibilities. In the control group - a slight increase from 23.95 to 29.17, respectively ($p > 0.05$).

The indicator "Pain intensity" before treatment (Bodilypain - BP) in the main group was 50.6 points before treatment and 48.89 points after treatment ($p > 0.05$). In the control group, there was an increase in this complaint from 38.91 to 45.4 ($p > 0.05$).

The General Health (GH) indicator in the main group was 50.7 points before treatment and 59.2 points after treatment ($p < 0.05$). In the control group - 38.7 and 51.3, respectively ($p < 0.05$). The indicator "Vitality" (VT) in the main group was reduced and amounted to 47.34 points before treatment. After treatment, the patients of the main group noted positive dynamics in the form of a surge of strength and energy, which was reflected in an increase in the indicator to 50.53 ($p > 0.05$). In the control group, this indicator slightly increased from 41.9 to 45.8 points ($p > 0.05$).

The indicator "Social Functioning" (SF) before treatment determines the restriction in communication and is 52.12 points in the main group, and slightly higher in the control group - 57.81. After treatment, there is a positive trend in the form of an improvement in the emotional state of patients and an increase in scores to 75.8 points in the main group ($p < 0.05$), while in the control group the indicator increased to 61.5 ($p > 0.05$).

The indicator "Role-Emotional" (RE), reflecting the degree of daily activity, before treatment in the main group was 40.42 points, and in the control group - 26.39 points. This indicates a large expenditure of time for work, a decrease in the amount of work, a deterioration in the emotional state. After treatment, this indicator was 58.87 points in the main group ($p < 0.05$), and in the control group - 40.28 points ($p > 0.05$). Positive dynamics indicates an improvement in the emotional state of patients.

The presence of a low index (MentalHealth - MH) in patients, characterizing the presence of depressive, anxious experiences, in the main group was 49.70 points before treatment. In the control group, this indicator was slightly higher before treatment - 57.83. After treatment in the main group, the MH indicator was 55.66 points ($p < 0.05$), the positive dynamics reflects the absence of mental ill-being, while in the control group this indicator decreased to 54 points ($p > 0.05$), that is, in patients a decrease in positive emotions was noted, which was expressed in anxious experiences. Table 3 shows the final indicators of the physical and psychological components of health before and after treatment for patients of both groups.

Table 3

The final indicators of the physical and psychological component of health

Основная группа		
	PH _н	MH _н
До лечения (баллы)	43,38339	39,08287
После лечения (баллы)	47,34063	43,11103
Дельты (баллы)	3,957242	4,028156
Достоверность различий (p)	0,00094*	0,0017*
Контрольная группа		
	PH _н	MH _н
До лечения (баллы)	43,46617	39,74117
После лечения (баллы)	43,89159	40,33755
Дельты (баллы)	0,425419	0,59638
Достоверность различий (p)	0,845667	0,85203

* – Различия достоверны

The final indicator "Physical component of health" (PH_н) before treatment in the main group was 43.38 points, and "psychological component of health" (MH_н) - 39.08 points. After treatment, the indices were 47.34 and 43.11 points. The differences in both indicators are significant ($p < 0.05$).

In the control group, before treatment, the indicators were 43.47 and 39.74 points, and after treatment - 43.89 points and 40.33 points, respectively. There were no significant differences ($p > 0.05$). The assessment of the quality of life of patients with hypertension using the SF-36 questionnaire showed that the disease leads to a decrease in all components of the quality of life (physical, psychological, social). The most sensitive in patients with hypertension were the criteria for QoL related to the psychological sphere. To assess the reliability, the Student and Mann-Whitney tests were used, as well as Kolmogorov-Smirnov tests when checking the probability distributions for compliance with the normal law. In the main group, as a result of treatment, significant improvements in condition ($p < 0.05$) were obtained on the PF (by 19.57), RP (by 34.04), GH (by 8.51), SF (by 23.67) scales, RE (up 18.44), MH (up 5.96). According to the final scales PH_н (by 3.957242) and MH_н (by 4.028156), there are also significant improvements in the state as a result of

treatment.

In the control group, a significant improvement in the condition of patients ($p < 0.05$) was observed only on the GH scale (by 12.54). There are no significant differences in the final scales (PH_ and MH_).

conclusions

According to the results obtained, the greatest positive influence on the RF component of role functioning is observed. It can be assumed that the method of photochromotherapy has the strongest effect on the psychological components of QOL, which in turn leads to an improvement in the general condition and, as a consequence, to an increase in the physical activity of patients.

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