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Финансирование. *Отсутствует.*

Статья поступила: *26.12.2022.*

Принята к публикации: *06.03.2023.*

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Conflict of interest. *All authors declare that there is no potential conflict of interest requiring disclosure in this article.*

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Contribution of the authors. *All authors have made an equal contribution to the development of the concept, implementation, processing of results and writing of the article. We declare that this material has not been published before and is not under consideration by other publishers.*

Financing. *Absent.*

Article submitted: *26.12.2022.*

Accepted for publication: *06.03.2023.*

UCD: 615.834: 619.9
IRSTI: 76.29.33.

DOI: 10.24412/2790-1289-2023-1-27-30

EVALUATION OF THE EFFICACY OF THE USE OF HALOTHERAPY IN PATIENTS AFTER CORONAVIRUS INFECTION

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Summary

The article reflects the results of a study conducted on the inclusion of the halotherapy method in a comprehensive rehabilitation program for 68 patients of different ages and gender infected with coronavirus infection, as well as an assessment of its effectiveness. We selected 68 patients with coronavirus infection and randomly divided them into two groups. Main group (n=38) and control group (n=30). Patients of the main group underwent complex rehabilitation and halotherapy, and patients of the control group underwent complex rehabilitation without halotherapy.

Key words: *coronavirus infection, complex rehabilitation, halotherapy method, cardiorespiratory system, Stange test, Genchi test, Borg scale.*

In March 2020, the World Health Organization announced an outbreak of a new coronavirus disease COVID – 19 caused by the common severe respiratory syndrome SARS-CoV-2, which led to a pandemic. Measures to contain the spread of the disease have been taken, but as of February 6, 2021, 106 million cases of COVID – 19 have been registered worldwide. Patients who have successfully recovered from COVID – 19 will need medical assistance to determine and quantify the effects of the disease. Follow-up is currently a new problem, as at this stage it remains unclear whether COVID-19 leaves irreversible damage, and if so, to what extent. Changes in lung tissue, such as clouding of the frosted glass, compaction, thickening of blood vessels, bronchiectasis, pleural effusion, hard nodules in the lungs, and many other consequences of COVID – 19 can progress in more than 80% of patients [1].

Some patients who have undergone COVID – 19 need intensive rehabilitation treatment. There is a need for a specialized rehabilitation program aimed at returning to habitual activity, improving the quality of life [5].

In recent years, more and more researchers and doctors have become aware of the expediency of using healing methods based on the use of natural or physical factors aimed at stimulating the mechanisms of sanogenesis, restoring compensatory reserves of the body. Natural therapeutic factors of the air environment can provide «softness» and «naturalness» of the impact on the body's defenses at a sufficiently high efficiency [3].

At the primary level, an important place is given to natural factors of treatment. These include equipped speleological and halocabinets as a type of non - medicinal methods based on the use of artificial microclimate, similar in parameters to the conditions of underground salt speleological clinics. The modern direction of this method is currently considered to be controlled halotherapy, where the main active factor is a dry highly dispersed aerosol of sodium chloride, which has a sanogenic, mucolytic, bronchodilatory, anti-inflammatory, immunomodulatory effect on the respiratory tract and indirectly improves the overall protection of the body, thereby exerting neurovegetative, psychoemotional and other therapeutic effects. Improving drainage function and reducing inflammation of the respiratory tract contributes to reducing hyperreactivity and reducing the bronchospastic component of obstruction [2].

Professor A.V. Chervinskaya notes in his works: "Sodium chloride aerosol improves the fluidity of bronchial secretions, contributing to the normalization of mucociliary clearance. Thanks to the action of the aerosol, the drainage function of the respiratory tract improves during halotherapy: sputum separation is facilitated, its viscosity decreases, cough is relieved, the auscultative picture in the lungs changes. Dry salt aerosol has a bactericidal and bacteriostatic effect on the microflora of the respiratory tract, stimulates the reactions of alveolar macrophages, contributing to an increase in phagocytic elements and enhancing their phagocytic activity." Professor A.V. Chervinskaya believes that all these positive effects from the use of halotherapy on the human body can reduce the risk of serious complications and significantly accelerate the rehabilitation process of patients who have suffered acute respiratory viral infections [4].

The purpose of the study: to evaluate the use of halotherapy in the complex rehabilitation of patients with Covid - 19 and its effectiveness.

Research materials and methods: We selected 68 patients with coronavirus infection and randomly divided them into two groups. Main group (n=38) and control group (n=30). Patients in the main group underwent complex rehabilitation and halotherapy, and patients in the control group underwent complex rehabilitation without halotherapy. In order to determine the effectiveness of the procedures, the following methods of inspection were carried out.

- General clinical examination (complaints, objective vision, spirometry, UQT);
- Estimation of SpO2 in blood at rest and after physical exertion;
- Carrying out and evaluating the Borge scale and the 6-minute walk test in the assessment of treatment effectiveness;
- Carrying out and evaluating functional tests of the respiratory system (Shtange, Genchi tests);

Results and their analysis: When the general blood analysis was analyzed, the predominance of inflammatory symptoms was observed in our patients. As shown in Table 3.1, lymphopenia was observed in 67% of patients, which returned to normal during the treatment period. We found thrombocytopenia in 17%, leukopenia in 24%, SRO increase in 63%.

When we compared the liver results on arrival and the liver results on treatment among our patients, we also observed an increase in these indicators. Changes in the body can also be caused by the toxin effect of drugs.

Since the main complaint of our patients is shortness of breath and reduced resistance to physical exertion, we used breathing exercises in them, and recommended halotherapy as an addition for our main group of patients. Rehabilitation of patients was carried out for 3 months.

We conducted breath tests, spirometry, OTS and Borge, 6 - minute walk test in order to determine the changes in them, that is, their effectiveness. We compared the results of both groups of patients.

When examining the HTS, we saw that the main group increased from 2100.78±24.93 ml to 3500.6±30.57 ml, and in the control group it increased from 2022.36±53.79 to 2480.4±23.9 ml. Creative indicators were more observed in patients who received halotherapy practice.

When determining the oxygen saturation in the blood, we observed that before treatment, the indicators decreased from the norm, and after the treatment, the indicators returned to the norm. We saw an increase from 92.5±15.8% to 98.2±7.18% in the main group, and from 93.4±16.3% to 96.2±0.18% in the control group. Better results were observed more in patients who received halotherapy practice.

Among our patients, it was noted that there is shortness of breath during physical activity and rapid fatigue during daily activities. Carrying out DJT exercises in a complex with breathing exercises increased resistance to physical exertion. To determine this, we used Borga and the 6-minute walk test. We obtained the following results. On the Borge scale, we saw that the main group increased from 7.32±0.17 points to 2.9±0.024 points, and the control group increased from 7.22±1.14 points to 3.43±0.24 points. This showed a decrease in panting during exercise. We saw that these results were reduced by half when conducted with halotherapy.

We took the 6 min. walking test from the treatment and then we saw that the main group increased from 260±26.8 m to 487.87±22.43 m, and the control group increased from 300±28.58 m to 418±32.43 m. We observed that the rehabilitation measures carried out with salt caves increased the effectiveness of the treatment.

Thus, it is recommended to carry out systematic, comprehensive rehabilitation for at least 3 months in patients with respiratory failure and shortness of breath during physical exertion. Complete, high-quality rehabilitation helps patients improve their quality of life. Taking halotherapy as part of the complex, that is, every day or 3 times a week [6].

Conclusions:

1. In patients infected with corona virus, it was found that shortness of breath and resistance to physical exertion decreased, saturation < 95% of main group patients (n=25), saturation < 93% of patients (n=13); patients in the control group (n=18), saturation < 95%, patients (n=12), saturation < 93%.

2. In patients with shortness of breath and reduced resistance to physical load, conducting therapeutic physical exercises against the background of drug rehabilitation led to the solution of the problem and the increase of indicators.

3. In patients with shortness of breath and reduced resistance to physical load, we observed a 3-fold effect of the use of therapeutic physical exercises and additional halotherapy practice against the background of drug rehabilitation compared to patients of the control group.

4. If the patients who passed the corona virus have problems with the respiratory system or reduced resistance to physical exertion, it is necessary to recommend medication, therapeutic breathing, physical exercises and, of course, the practice of halotherapy for the rehabilitation of the group of patients.

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КОРОНАВИРУСТЫҚ ИНФЕКЦИЯМЕН АУЫРАТЫН НАУҚАСТАРДА ГАЛОТЕРАПИЯНЫ ҚОЛДАНУ ТИІМДІЛІГІН БАҒАЛАУ

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Түйінді

Мақалада галотерапия әдісін коронавирустық инфекцияны жұқтырған әр түрлі жастағы және жыныстағы 68 пациентті кешенді оңалту бағдарламасына енгізген кездегі зерттеу нәтижелері, сондай – ақ оның тиімділігін бағалау келтірілген. Коронавирустық инфекциясы бар 68 пациент таңдалды және кездейсоқ екі топқа бөлінді. Негізгі топ (N=38) және бақылау тобы (n=30). Негізгі топтағы пациенттерге кешенді оңалту және галотерапия, ал бақылау тобындағы пациенттерге галотерапиясыз кешенді оңалту жүргізілді.

Кілт сөздер: *коронавирустық инфекция, кешенді оңалту, галотерапия әдісі, кардиореспираторлық жүйе, штанга сынамасы, Генчи сынамасы, Борг шкаласы.*

ОЦЕНКА ЭФФЕКТИВНОСТИ ПРИМЕНЕНИЯ ГАЛОТЕРАПИИ У БОЛЬНЫХ, ПЕРЕНЕСШИХ КОРОНАВИРУСНУЮ ИНФЕКЦИЮ

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Аннотация

В статье представлены результаты исследования, при включении метода галотерапии в комплексную программу реабилитации 68 пациентов разного возраста и пола, инфицированных коронавирусной инфекцией, а также оценка его эффективности. Были отобраны 68 пациентов с коронавирусной инфекцией и случайным образом разделены на две группы. Основная группа (n=38) и контрольная группа (n=30). Пациентам основной группы проводили комплексную реабилитацию и галотерапию, а пациентам контрольной группы комплексную реабилитацию без галотерапии.

Ключевые слова: *коронавирусная инфекция, комплексная реабилитация, метод галотерапии, кардиореспираторная система, проба Штанге, проба Генчи, шкала Борга.*

Конфликт интересов. *Все авторы заявляют об отсутствии потенциального конфликта интересов, требующего раскрытия в данной статье.*

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Финансирование. *Отсутствует.*

Статья поступила: *11.01.2023.*
Принята к публикации: *06.03.2023.*

Conflict of interest. *All authors declare that there is no potential conflict of interest requiring disclosure in this article.*
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Contribution of the authors. *All authors have made an equal contribution to the development of the concept, implementation, processing of results and writing of the article. We declare that this material has not been published before and is not under consideration by other publishers.*
Financing. *Absent.*

Article submitted: *11.01.2023.*
Accepted for publication: *06.03.2023.*

УДК: 616.314-085
МРНТИ: 76.29.55.
DOI: 10.24412/2790-1289-2023-1-30-38

ОЦЕНКА СТОМАТОЛОГИЧЕСКОГО ОБСЛЕДОВАНИЯ ПАЦИЕНТОВ С ЭНДОПАРОДОНТАЛЬНЫМ СИНДРОМОМ

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Аннотация

В статье приведены результаты стоматологического обследования пациентов с эндопародонтальным синдромом для эффективной постановки диагноза. При сочетанном поражении пародонта и эндодонта возникают сложности в оценке первичного очага поражения, выборе метода лечения и достижении положительных результатов лечения. Проведенное исследование поможет практическим врачам в вопросах организации, планирования таких пациентов, выборе тактики лечения для достижения эффективности и создания длительной ремиссии.

Ключевые слова: *обследование, пациент, эндопародонтальный синдром, диагноз, результат, осложнение.*

Введение. С каждым годом увеличивается число пациентов с воспалительными заболеваниями пародонта и это количество продолжает увеличиваться [1; 2]. В последние десятилетия наблюдается тенденция к увеличению частоты воспалительных заболеваний пародонта среди лиц более молодого возраста [2]. По данным ВОЗ, распространенность заболеваний пародонта составляет 9-10% у детей младшего возраста и достигает 81-90% у подростков [3; 4; 5; 6]. По данным научного доклада ВОЗ (1990), в котором обобщены результаты обследования населения 53 стран, высокий уровень заболеваемости пародонта отмечен как в возрастной группе 15-19 лет (55-99%), так и в группе 35-44 года (65-98%) [7]. По данным отчета Европейского бюро ВОЗ, собранном в 35 странах мира, отмечалась высокая распространенность заболеваний пародонта (свыше 75%) среди лиц в возрасте 35-44 лет в семи странах, высокая распространенность (40-73%) в тринадцати странах и умеренная (менее 40%) в пятнадцати странах [8].

Среди лиц молодого возраста (15–34 года) в развитии воспалительных заболеваний пародонта (ВЗП) важное значение имеют аномалии строения мягких тканей преддверия полости рта и наследственная предрасположенность, а среди взрослого населения (старше 35 лет) – патология прикуса и соматическая отягощенность. У молодых людей ВЗП преимущественно имеют лёгкое течение (84,62%), а количество лиц со средней степенью заболевания составляет 15,38% [9]. Результаты исследований факторов риска выявили, что у лиц молодого возраста с ВЗП в 1,6 раза чаще, чем в группе сравнения, выявляются хронические соматические заболевания ($p<0,01$). Преобладающей соматической патологией в этом возрасте являются заболевания желудочно-кишечного тракта ($p<0,01$). Лица молодого возраста в 2,5–2,6 раза чаще болеют простудными заболеваниями ($p<0,001$), у большинства из них имеет место наследственная отягощенность по заболеваниям пародонта ($p<0,001$). Установлено, что среди пациентов с диагностированными ВЗП достоверно больше курящих ($p<0,001$) и употребляющих мучную пищу ($p<0,001$), чем среди лиц, не имеющих патологии пародонта [10]. Выявлена распространенность заболеваний пародонта – 92% и кариеса – 93,7%. Установлено, что длительная плохая гигиена полости рта может стимулировать развитие генерализованного пародонтита. Высокая распространенность заболеваний пародонта обуславливает необходимость диспансерного наблюдения лиц в возрасте 15-35 лет, необходимость создания сети профилактических стоматологических кабинетов для обучения методам гигиенического ухода за полостью рта. Профессиональная гигиена полости рта должна занимать решающее место в комплексном лечении генерализованного пародонтита у лиц молодого возраста [11]. Тесные анатомические и функциональ-