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Case Report

A Clinical Case of an Integrated Approach Using Vibroacoustic Therapy in a Patient with Sepsis due to Periprosthetic Infection on the Background of COVID-19

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Abstract

The purpose of this message: the purpose of the report: to discuss the tactics of managing a patient with sepsis due to periprosthetic infection due to COVID-19.

This manuscript describes a clinical case of a 58-year-old man with sepsis due to periprosthetic infection due to COVID-19, who was urgently hospitalized in the intensive care unit. In history 4 days ago, the patient underwent surgery - total knee arthroplasty for right-sided post-traumatic gonarthrosis stage 3. In the postoperative period, an increase in body temperature to febrile numbers was recorded once, in connection with which surgical debridement and sanitation of the postoperative wound were performed, antibiotic therapy was prescribed, and the patient was discharged for the outpatient stage of treatment.

The patient was in the hospital for 59 days, including 58 days in the intensive care unit. According to the results of complex treatment, the patient was discharged with improvement for the outpatient stage. The article presents a clinical case of a successfully treated patient who was in the Department of Anesthesiology and Intensive Care in critical condition with sepsis as a result of an implant-associated infection against the background of a severe course of coronavirus infection.

Conclusions. This clinical case showed the high efficacy of vibro-acoustic lung therapy in the treatment of respiratory distress syndrome, which demonstrated its effectiveness in the latest multicenter clinical trial.

Keywords: COVID-19, periprosthetic joint infection, vibroacoustic therapy, co-infection, case report.

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Introduction

There are more and more orthopedic interventions using implants in the world, which has significantly improved the quality of life of this category of patients. Along with this, the frequency of postoperative complications is also increasing, in particular, implant-associated infections up to the development of sepsis. Intensive sepsis therapy

Case description

A 59 year old, male was hospitalized in an emergency in the intensive care unit. In the anamnesis 4 days ago, the patient underwent surgery - total knee replacement for right-sided post-traumatic gonarthrosis of the 3rd stage. In the postoperative period, an increase in

is one of the most urgent problems in intensive care [1-4]. Since the incidence of sepsis is continuously increasing and there is still a high mortality rate.

This clinical case describes the management of a patient with sepsis due to periprosthetic infection on the background of COVID-19.

body temperature to febrile figures was recorded once, in connection with which surgical treatment and debridement of the postoperative wound was performed, antibiotic therapy was prescribed, the patient was discharged for the outpatient stage of treatment.



Figure 1 - ROC in 1 day

As a result of the deterioration of well-being in the form of manifestations of intoxication, pain, joint syndromes, the patient, accompanied by relatives, goes to the polyclinic, where, according to the severity of the condition, he was sent for emergency hospitalization due to complications of the postoperative period in the form of periprosthetic infection, sepsis, DIC syndrome and bilateral interlobular exudative pleurisy. From the concomitant pathology, the patient has coronary artery disease, a three-

vessel lesion of the coronary bed, arterial hypertension, suffered CABG a year ago. According to the results of the examination, bilateral polysegmental hypostatic pneumonia was also detected. Pneumosclerosis, chronic bronchitis. Primary rapid test for COVID-19: IgM. IgG -gave a negative result. Next, a positive PCR result was obtained for COVID-19 [5, 6].

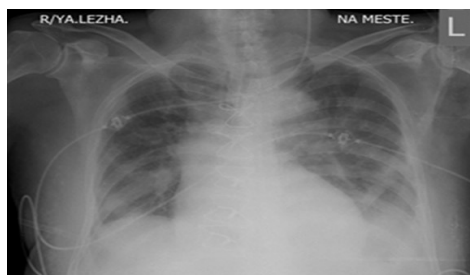


Figure 2- ROGK on the 8th day

In the intensive care unit, the patient underwent complex therapy, which included treatment of COVID-19 with the use of antiviral agents (Remdesevir) and hormones (Dexamethasone). Remdesevir was subsequently cancelled due to QT syndrome. Post-syndrome therapy was carried out: oxygen therapy followed by the transition to NIVL, intubation and installation of a tracheostomy due to prolonged stay on a ventilator for the treatment of respiratory failure syndrome.

The patient also underwent vibroacoustic pulmonary therapy (VALT), which, as a result of a recent multicenter study, showed its effectiveness in the treatment of respiratory distress syndrome. The patient was in an extremely serious condition with hemodynamic instability, for which he received vasopressor support. In order to prevent cardiac complications, taking into account the presence of concomitant cardiac pathology, the patient was prescribed basic antihypertensive, antiarrhythmic

therapy. Correction of the water-electrolyte balance, hemocorrection with the appointment of anticoagulants, infusion-transfusion media was carried out under careful control of hemostasis indicators. For detoxification purposes, stimulation of diuresis and stool was carried out. Gastroprotectors, mucolytics and antifungal agents were also used in therapy [7, 8].

Combined antibacterial therapy was carried out taking into account the identified pathogens and sensitivity to antibiotics. The following microorganisms were seeded from the area of the surgical wound: Escherichia coli, Staphylococcus epidermidis, which are the most common pathogens of periprosthetic infections.

Morqanella morqanii, Pseudomonas aeruginosa, Enterobacter aerogenes, Proteus vulgaris were sown from the intubation tube in the crops. In this connection, various schemes of antibacterial therapy were used, during which the patient received carbapenems (meropenem, ertapenem), cephalosporins (ceftazidim, cef4), fluoroquinolones

(ciprofloxacin, moxifloxacin), lincosamides (lincomycin), aminoglycosides (amikacin).

Bandages and wound treatment were constantly carried out, and subsequently a skin graft was transplanted into the area of the postoperative wound.



Figure 3 - ROGK on the 16th day



Figure 4 - ROCK on the 25th day

Also on the 18th day, a CT scan of the chest organs was performed, according to the results of which: diffuse compaction of the pulmonary parenchyma by the type of "frosted glass", with areas of consolidation, involving more than 75% of the parenchyma, was determined in all the

pulmonary fields of the right and left lungs. On day 49, CT control of the thoracic segment was performed: a picture of positive dynamics, bilateral polysegmental pneumonia (viral etiology, severe severity, in art. resolution). Lymphadenopathy.



Figure 5 - ROCK for 32 days

Against the background of the complex of medical measures carried out, the patient in a stable condition was

transferred to the specialized department, from where he was successfully discharged from the hospital.

Discussion

The patient was hospitalized for 59 days, including 58 days in the intensive care unit. According to the results of the complex treatment, the patient was discharged with improvement to the outpatient stage. This article presents a clinical case of a successfully treated patient who was

in critical condition in the department of anesthesiology and intensive care with sepsis as a result of an implant-associated infection against the background of a severe course of coronavirus infection [9].

Conclusions

This clinical case showed a high efficiency of the use of vibroacoustic pulmonary therapy in the treatment of respiratory distress syndrome, which demonstrated its effectiveness in the latest multicenter clinical study.

The concept of noninvasive ventilation, used in the therapy of this patient and recommended by the latest guidelines, also demonstrates positive results in the treatment of acute respiratory failure in COVID-19. Figures 1-5 show the dynamics in the lungs.

Conflict of interest. The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Contribution of authors. A.K.: conceptualization and organization of the database. A. Zh.: writing a draft. A.K.: review and editing of the manuscript. All authors have given final approval for the version to be submitted.

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COVID-19 фонында перипротездік инфекцияға байланысты сепсиспен ауыратын науқаста виброакустикалық терапияны қолданатын кешенді тәсілдің клиникалық жағдайы

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Түйіндеме

Бұл жұмыстың мақсаты: COVID-19 перипротездік инфекцияға байланысты сепсиспен ауыратын науқасты жүргізу.

Мақалада шұғыл түрде жансақтау бөліміне жатқызылған 59 жастағы ер адамның клиникалық жағдайы сипатталған. Анамнезінде 4 күн бұрын науқасқа операция жасалды – оң жақты посттравматикалық гонартроздың 3 сатысы бойынша тотальды тізе артропластикасы. Отадан кейінгі кезеңде дене температурасының фебрильді сандарға дейін жоғарылауы бір рет тіркелді, соған байланысты операциядан кейінгі жараны хирургиялық тазарту және санитарлық тазарту жүргізілді, антибиотикалық терапия тағайындалды, науқас емделудің амбулаториялық кезеңіне шығарылды.

Науқас стационарда 59 күн, оның ішінде 58 күн жансақтау бөлімінде болды. Кешенді емдеу нәтижесі бойынша науқас амбулаториялық кезеңдегі жағдайы жақсарып, үйден шығарылды. Мақалада коронавирустық инфекцияның ауыр ағымының фонында имплантпен байланысты инфекция нәтижесінде сепсиспен ауыр жағдайда анестезиология және реанимация бөлімшесінде сәтті емделген науқастың клиникалық жағдайы берілген.

Қорытынды. Бұл клиникалық жағдай респираторлық дистресс синдромын емдеуде өкпенің вибро-акустикалық терапиясының жоғары тиімділігін көрсетті, бұл оның тиімділігін соңғы көп орталықты клиникалық сынақта көрсетті.

Түйін сөздер: COVID-19, перипротездік буын инфекциясы, виброакустикалық терапия, коинфекция, жағдай туралы есеп.

Клинический случай комплексного подхода с применением виброакустической терапии у больного сепсисом вследствие перипротезной инфекции на фоне COVID-19

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Резюме

Цель сообщения: обсудить тактику ведения пациента с сепсисом вследствие перипротезной инфекции на фоне COVID-19.

В данной рукописи описание клинический случай мужчины 58 лет с сепсисом вследствие перипротезной инфекции на фоне COVID-19, который был госпитализирован в экстренном порядке в отделение реанимации. В анамнезе 4 дня назад больной перенес операцию - тотальное эндопротезирование коленного сустава по поводу правостороннего посттравматического гонартроза 3 стадии. В послеоперационном периоде однократно зафиксировано повышение температуры тела до фебрильных цифр, в связи с чем проведена хирургическая обработка и санация послеоперационной раны, назначена антибиотикотерапия, больной выписан на амбулаторный этап лечения.

Результаты. Больной находился в стационаре 59 дней, из них 58 дней в отделении интенсивной терапии. По результатам комплексного лечения больной выписан с улучшением на амбулаторный этап. В статье представлен клинический случай успешно пролеченного пациента, находившегося в отделении анестезиологии и реанимации в критическом состоянии с сепсисом в результате имплант-ассоциированной инфекции на фоне тяжелого течения коронавирусной инфекции.

Выводы. Данный клинический случай показал высокую эффективность применения вибро-акустической легочной терапии в лечении респираторного дистресс-синдрома, что продемонстрировало ее эффективность в последнем многоцентровом клиническом исследовании.

Ключевые слова: COVID-19, инфекция перипротезного сустава, виброакустическая терапия, сопутствующая инфекция, отчет о случае.