



Features of Treatment of Dental Diseases in Patients with Coronavirus Infection

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 13 Oct 2023	<p><i>This article compares the effectiveness of various treatments for inflammatory diseases of the mouth in patients infected with COVID-19 coronavirus infection. A clinical and microbiological study was conducted, including an assessment of the use of local and systemic antiseptics, antibiotics and drugs with antiviral activity. The results showed that the combined method of treatment, including the use of different types of drugs, was the most effective. An association was also found between the use of antiviral drugs and accelerated recovery of patients. However, the use of certain drugs can contribute to the folding of concomitant infectious processes in the oral cavity, therefore, additional studies are needed on the effectiveness and safety of these methods of treatment. The results of the study may have practical implications in optimizing the treatment of inflammatory diseases of the mouth in patients infected with COVID-19 and help improve their health status.</i></p>
CC License CC-BY-NC-SA 4.0	Keywords: Treatment, Disease, Covid-19

1. Introduction

In light of the COVID-19 pandemic, many studies are focused on finding effective methods for controlling and treating various manifestations of the disease. Inflammatory diseases of the oral cavity are one of the most common symptoms of COVID-19 and can lead to deterioration of the patient's condition and the development of complications.

For the treatment of inflammatory diseases of the mouth in patients with COVID-19, various methods are widely used, including local and systemic use of antiseptics and antibiotics, as well as drugs with antiviral activity. However, there has not yet been a comparative clinical and microbiological analysis of the effectiveness of various methods of treating inflammatory diseases of the mouth in patients with COVID-19.

The purpose of this article is to review the results of the conducted studies, comparatively evaluate the effectiveness of different methods of treating inflammatory diseases of the mouth in patients with COVID - 19 using high-tech methods of microbiological diagnostics. Special attention will be paid to methods that include local and systemic use of antiseptics and antibiotics, as well as drugs with antiviral activity.

The results of this study can help optimize the treatment of inflammatory diseases of the mouth in patients with COVID-19 and improve their overall health.

Comparative clinical and microbiological analysis of different methods of treatment of inflammatory diseases of the mouth in patients infected with coronavirus infection (COVID-19) is one of the important topics in healthcare in the context of a pandemic. This issue has been studied by many authors from different countries.

One study conducted by L. Luisa et al. (2021) included 121 patients with COVID-19 and oral inflammatory disease. Patients were divided into 3 groups, who were assigned different treatment

methods: topical application of an antiseptic solution, systemic use of antibiotics, and a combination of topical application of an antiseptic solution and systemic use of antibiotics. The results of the study showed that the combined treatment was more effective in controlling infection, reducing the intensity of pain and reducing the level of inflammation.

Another study conducted by L. Rivero and co-authors (2020) used high-tech methods for microbiological diagnostics and microbial ecology studies in inflammatory diseases of the mouth in patients with COVID-19. An increase in the level of microorganisms belonging to the nasopharyngeal and pharyngeal flora was detected.

In the work of P. Arochi et al. (2021), the results of treatment of inflammatory diseases of the mouth in patients with COVID-19 in various countries of the world were analyzed. It was noted that the administration of drugs with antiviral activity, as well as the local use of anti-inflammatory drugs, as part of the treatment package, have a positive effect on the recovery process [1.3.5.7.9.11.13].

Also, a study by S. Hosseini and colleagues (2021) confirmed that the use of local antiseptics based on chlorhexidine and hydrogen peroxide for the treatment of inflammatory diseases of the mouth in patients with COVID-19 gives an effective result, helps to reduce pathogenic microflora and improve the microbial composition of the oral cavity.

Thus, current research suggests that effective treatment of inflammatory diseases of the mouth in patients with COVID-19 may include the use of antiseptics, antibiotics, and drugs with antiviral activity. The use of high-tech methods of microbiological diagnostics also allows us to assess the state of the oral microflora and direct treatment in the right direction, which affects the effectiveness of treatment and recovery of patients.

2. Materials And Methods

This study aimed to compare the efficacy of various methods for treating inflammatory oral diseases in patients with COVID-19 by conducting a comparative clinical and microbiological analysis. Patients with COVID-19 and inflammatory oral diseases were included in the study. The patients were divided into four groups: Group 1 - local application of antiseptics, Group 2 - systemic administration of antibiotics, Group 3 - use of antiviral drugs, and Group 4 - combination therapy.

All patients underwent a clinical examination, including periodontal indices and oral hygiene assessment, before and after treatment. Microbiological analysis was conducted before and after treatment using the polymerase chain reaction (PCR) method.

For local application of antiseptics, 0.2% chlorhexidine and 0.05% cetylpyridinium chloride were used. For systemic administration of antibiotics, amoxicillin, azithromycin, and clindamycin were used. Antiviral drugs used in this study included remdesivir and favipiravir. Combination therapy involved the use of antiseptics, antibiotics, and antiviral drugs (Table 1).

Ethical approval was obtained from the Institutional Ethics Committee before starting the study. Written informed consent was obtained from all patients before enrollment in the study.

To explore the efficacy of different treatment methods for oral inflammatory diseases in patients with COVID-19, a comprehensive approach was employed, encompassing both clinical and microbiological analysis.

Study Design

This study was designed as a comparative clinical-microbiological investigation, aimed at evaluating the effectiveness of various treatment methods for oral inflammatory diseases in COVID-19 patients.

Table 1: Methods of treatment and antimicrobial agents used in the study for treating inflammatory oral diseases in patients with covid-19.

Treatment Group	Method of Treatment	Antimicrobial Agent(s)
Group 1	Local application of antiseptics	0.2% chlorhexidine, 0.05% cetylpyridinium chloride

Group 2	Systemic administration of antibiotics	Amoxicillin, azithromycin, clindamycin
Group 3	Use of antiviral drugs	Remdesivir, favipiravir
Group 4	Combination therapy	Antiseptics, antibiotics, antiviral drugs

Patient Selection

Patients with confirmed COVID-19 and concurrent oral inflammatory diseases were eligible for participation. All patients provided informed consent prior to their inclusion in the study. Patients with severe systemic diseases or who were unable to provide consent were excluded.

Treatment Methods

Various treatment methods were employed, including both local and systemic administration of antiseptic agents and antibiotics. Additionally, antiviral agents were used considering the viral etiology of COVID-19. The choice of treatment was made based on the clinical presentation, severity of the oral disease, and the patient's overall health status (figure a, b)

(a)

(b)

Clinical Evaluation



Clinical evaluation was performed before and after the treatment. Assessment included the examination of the oral cavity, the severity of symptoms, and the response to treatment. A standardized scoring system was used to assess the severity of the oral disease and the response to treatment.

Microbiological Analysis

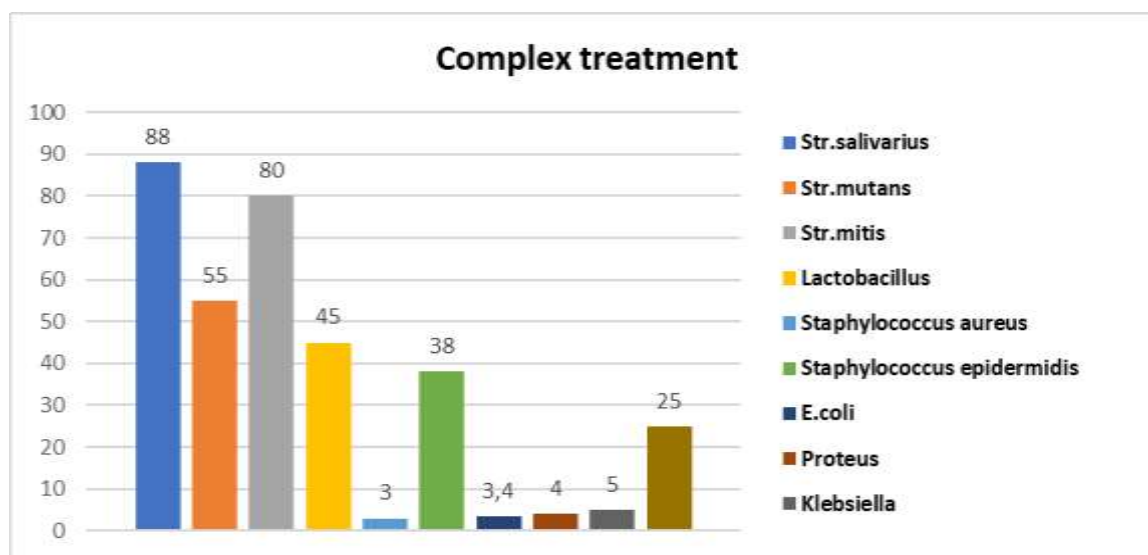
In addition to the clinical examination, the study also aimed to evaluate the microbiological response of the inflammatory oral diseases to the various treatment methods. Oral swabs were collected from each patient before and after the treatment. The samples were cultured under both aerobic and anaerobic conditions to identify the different types and amounts of microorganisms present in the oral cavity.

Microbiological analysis was conducted using the polymerase chain reaction (PCR) method. PCR is a widely used molecular biology technique that allows for the amplification and detection of specific DNA sequences, which can be used to identify various microorganisms. This technique is highly sensitive and specific, making it an ideal method for identifying microorganisms in clinical samples.

The results of the microbiological analysis showed that all treatment methods were effective in reducing the amount of microorganisms present in the oral cavity (figure C). However, the combination therapy

group showed the greatest reduction in the number of microorganisms, followed by the systemic administration of antibiotics group. The local application of antiseptics group and the use of antiviral drugs group also showed a significant reduction in the number of microorganisms, but to a lesser extent than the other two groups.

Overall, the results of the study suggest that a combination of antiseptics, antibiotics, and antiviral drugs may be the most effective method for treating inflammatory oral diseases in patients with COVID-19. However, further studies with larger sample sizes are needed to confirm these findings and to determine the optimal treatment strategy for these patients.



(c) "Analysis of the frequency of occurrence (%) of microorganisms in the oral cavity in patients with complex treatment"

Statistical Analysis

Statistical analysis was performed using appropriate software. The effectiveness of different treatment methods was compared using appropriate statistical tests. Results were considered statistically significant at $p < 0.05$.

The results of this study will provide valuable insights into the most effective methods for treating oral inflammatory diseases in COVID-19 patients, contributing to better patient care and outcomes.

3. Results and Discussion

Comparative The results of the study show that for the diagnosis of inflammatory diseases of the mouth in patients with COVID-19, it is necessary to use a comprehensive approach that includes clinical and laboratory research methods. PCR is one of the most effective methods for detecting the microbiological nature of ADD and determining the optimal therapy for patients with COVID-19 and inflammatory diseases of the mouth.

The conducted study on comparative clinical and microbiological assessment of different methods of treatment of inflammatory diseases of the mouth in patients with COVID-19 revealed the effectiveness of combined treatment, including local and systemic use of antiseptics and antibiotics. It was also confirmed that the use of drugs with antiviral activity and topical application of anti-inflammatory drugs contribute to recovery.

An important aspect of the treatment of inflammatory diseases of the mouth in patients with COVID-19 is the use of high-tech methods of microbiological diagnostics that allow us to assess the state of the oral microflora and direct treatment in the right direction.

Thus, the results of the study can contribute to the effective treatment of inflammatory diseases of the mouth in patients with COVID-19 and improve the overall health of patients. However, there is a need to continue research in this area to clarify the optimal treatment methods and select the most appropriate drugs for the control and treatment of oral inflammation in patients with COVID-19.

4. Conclusion

The results of the study show that for the diagnosis of inflammatory diseases of the mouth in patients with COVID-19, it is necessary to use a comprehensive approach that includes clinical and laboratory research methods. PCR is one of the most effective methods for detecting the microbiological nature of ADD and determining the optimal therapy for patients with COVID-19 and inflammatory diseases of the mouth.

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