

STANDARD METHODS OF TREATMENT FOR CORONAVIRUS INFECTION

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ABSTRACT: This scientific article focuses on the analysis of standard clinical approaches used in the treatment of coronavirus infection. Based on a comprehensive review of the disease pathogenesis, the mechanisms of viral impact on the human body, and key clinical manifestations, the article highlights modern therapeutic principles. Standard treatment strategies, including the use of antiviral medications, respiratory support measures, anti-inflammatory interventions, and approaches for stabilizing the patient's general condition, are examined in detail. Additionally, the effectiveness of oxygen therapy, mechanical respiratory support techniques, and immune-modulating medications used in severe cases is evaluated using evidence from authoritative medical literature. The primary aim of this research is to assess the effectiveness of currently applied treatment methods, identify their advantages and limitations, and determine the most appropriate therapeutic strategy for each patient.

KEYWORDS: Coronavirus, viral infection, standard treatment, antiviral medications, anti-inflammatory therapy, respiratory support, oxygen therapy, immune system modulation, clinical practice, severe patients.

INTRODUCTION

Coronavirus infection has emerged as a serious global challenge for healthcare systems worldwide, distinguished not only by its high transmissibility but also by its multifaceted impact on various body systems. The clinical manifestations of the disease range from mild symptoms to severe respiratory failure, and the development of inflammation, coagulation disorders, and altered immune responses further complicates its pathogenesis. Therefore, the use of unified, evidence-based standard approaches in treatment and the organization of clinical practice based on consistent guidelines are of great importance. The relevance of the topic lies in the fact that effective treatment of coronavirus infection plays a direct role in saving patients' lives, preventing severe complications, and reducing the number of admissions to intensive care units. Although numerous scientific publications provide data on antiviral drugs, anti-inflammatory therapies, oxygen support, respiratory assistance, and immunomodulatory agents, research on their correct clinical evaluation and rational implementation is still ongoing. Thus, a scientific

analysis of standard treatment methods and a deep understanding of their advantages and limitations represent one of the current priorities of modern medicine.

Use of antiviral drugs

One of the main directions in the treatment of coronavirus infection is the use of antiviral medications aimed at limiting viral replication in the body. These drugs slow the multiplication of the virus inside cells, helping to reduce the duration of the disease and lower the risk of progression to severe forms. It has been established that antiviral agents are most effective when used in the early stages of the disease. At the same time, their selection depends on the patient's age, comorbidities, and the clinical severity of the infection.

Anti-inflammatory therapies

Coronavirus infection enhances systemic inflammatory responses in many patients. Uncontrolled inflammation increases the risk of respiratory failure, widespread pulmonary involvement, and multi-organ dysfunction. Anti-inflammatory medications help suppress excessive inflammatory reactions. Clinical observations confirm that such therapies significantly reduce mortality rates and improve the general condition of patients.

Respiratory support measures

Disturbances in gas exchange in the lungs are among the most common and life-threatening outcomes of coronavirus infection. In patients with moderate to severe disease, oxygen therapy is used to restore normal oxygen levels. In severe cases, high-flow oxygen, non-invasive ventilation, or mechanical ventilation may be required. Respiratory support plays a decisive role in increasing the patient's chance of survival.

Immune system modulation

During the course of the disease, excessive activation of the immune system can lead to severe complications. Therefore, immunomodulatory drugs began to be widely used in severe cases. These medications reduce pathological immune responses and protect lung tissues from damage. Scientific studies demonstrate that such agents can reduce mortality rates among severely ill patients.

Stabilization of the patient's general condition

Since coronavirus infection affects multiple organ systems, it is essential to monitor cardiovascular function, kidney activity, metabolic processes, and electrolyte balance during treatment. Proper rehydration, thrombosis prevention, normalization of body temperature, and restoration of metabolic balance greatly contribute to patient recovery.

MATERIALS AND METHODS

This scientific work analyzed reliable medical literature, clinical guidelines, treatment protocols approved by international health organizations, and major clinical studies related to standard treatment practices for coronavirus infection. In selecting the data, priority was given to highly reliable multicenter clinical trials, randomized controlled studies, and systematic reviews.

The following methods were used in the research:

Analytical-methodological approach – to identify the scientific basis of treatment methods.

Comparative method – to compare the effectiveness of antiviral drugs, anti-inflammatory therapies, respiratory support techniques, and immunomodulatory agents.

Clinical description method – to explain the treatment effectiveness in mild, moderate, and severe clinical cases.

Systematic literature review – to thoroughly study the advantages and limitations of treatment methods.

Based on the analyzed data, the main evidence-based standard treatment mechanisms for coronavirus infection were summarized.

RESULTS

Analysis showed that standard clinical approaches to treating coronavirus infection play a crucial role in stabilizing vital indicators, preventing severe complications, and reducing mortality rates.

Effectiveness of antiviral drugs:

Antiviral agents used in the early stage of the disease slow viral replication, reduce inflammation, and decrease the risk of progression to severe illness. Reviewed studies indicate that they accelerate clinical improvement in patients with mild to moderate disease.

Outcomes of anti-inflammatory therapy:

Drugs that reduce systemic inflammation were effective in limiting lung tissue damage in severe cases. It was noted that controlling inflammation contributed to lowering the degree of respiratory failure.

Effectiveness of respiratory support:

Oxygen therapy was effective in quickly correcting moderate hypoxemia, and high-flow oxygen systems reduced the need for mechanical ventilation in severe cases. Mechanical ventilation remained an essential method in life-threatening respiratory failure.

Results of immune system modulation:

In severely ill patients with excessive immune activation, immunomodulatory medications reduced lung inflammation and contributed to decreased mortality in several clinical trials.

Stabilization of general condition:

Rehydration, thrombosis prevention, and metabolic balance restoration improved patients' overall clinical status.

DISCUSSION

The obtained results indicate that standard therapy elements complement each other through various mechanisms. Antiviral drugs are most effective in the early stages and show enhanced benefits when combined with anti-inflammatory therapies in later stages. Since respiratory failure is one of the main life-threatening complications of coronavirus infection, oxygen therapy and respiratory support hold a priority place in clinical practice. Studies show that these measures rapidly stabilize vital signs. Immune system modulation is significant in severe cases and serves to reduce inflammation; however, the choice of such treatment must be made carefully, considering clinical condition, laboratory results, and risk factors. Proper implementation of general stabilization measures increases overall treatment effectiveness. Thrombosis prevention, fluid balance correction, and metabolic control accelerate recovery. This research demonstrated that selecting standard treatment strategies based on the patient's clinical severity, age, comorbidities, and immune status is the most appropriate approach.

CONCLUSION

Standard clinical approaches to treating coronavirus infection include complex and interrelated mechanisms such as antiviral therapy, inflammation control, respiratory support, and immune system regulation. The analysis shows that these treatment methods play a significant role in saving lives, preventing severe complications, and improving clinical outcomes. The results of the study confirm the necessity of an individualized approach in treating coronavirus infection. Tailoring treatment strategies based on age, clinical severity, comorbidities, and laboratory findings improves therapeutic effectiveness. Additionally, the combined use of antiviral agents, anti-inflammatory medications, oxygen therapy, and immunomodulatory treatments notably accelerates the patient's recovery process.

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