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# THE EFFECTIVENESS OF EARLY ANTIVIRAL THERAPY IN REDUCING COVID-19 SEVERITY

**Jevana D, Riagup K**

**Abstract:** The global outbreak of COVID-19 has led to a critical need for effective therapeutic strategies. Among these, early administration of antiviral agents such as remdesivir and molnupiravir has shown potential to reduce disease severity and improve clinical outcomes. This study investigates the clinical impact of initiating antiviral therapy during the early phase of SARS-CoV-2 infection, focusing on hospitalization rates, ICU admissions, and mortality.

**Keywords**: COVID-19, SARS-CoV-2, antiviral therapy, remdesivir, early treatment, clinical outcomes

## Introduction

Since its emergence in late 2019, COVID-19 has caused significant morbidity and mortality worldwide. While vaccines have played a pivotal role in prevention, treatment options remain essential, especially in high-risk populations. Antiviral agents such as remdesivir, nirmatrelvir/ritonavir (Paxlovid), and molnupiravir have been authorized for emergency use. Emerging evidence suggests that early initiation of these therapies—preferably within the first five days of symptom onset—may significantly reduce viral replication, disease progression, and the need for hospitalization. This study aims to evaluate the effectiveness of early antiviral therapy in reducing the severity of COVID-19.

## Materials and Methods

A retrospective cohort study was conducted at three tertiary hospitals between January and June 2023. A total of 450 adult patients with confirmed mild-to-moderate COVID-19 were included. Patients were divided into two groups: Group A (n=230) received antiviral treatment within 5 days of symptom onset; Group B (n=220) did not receive early antiviral therapy.

Data collected included demographics, comorbidities, symptom onset time, antiviral agent used, hospitalization, ICU admission, and mortality. The primary outcome was hospitalization rate; secondary outcomes included ICU admission and all-cause mortality within 28 days. Statistical analysis was performed using chi-square tests and multivariate logistic regression.

## Results

Out of 450 patients, those who received early antiviral therapy (Group A) had significantly lower rates of hospitalization (12.6% vs. 27.3%, $p<0.001$), ICU admission (3.9% vs. 10.5%, $p=0.003$), and 28-day mortality (1.3% vs. 5.9%, $p=0.01$) compared to the control group (Group B). Among antivirals, Paxlovid showed the greatest reduction in severe outcomes. Early therapy was most beneficial in patients aged over 60 or with underlying chronic conditions.

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Multivariate analysis confirmed early antiviral use as an independent protective factor against hospitalization (OR=0.42, 95% CI: 0.28–0.63) and ICU admission (OR=0.36, 95% CI: 0.18–0.71).

**Discussion**

The findings of this study support the use of early antiviral therapy as an effective strategy to mitigate COVID-19 severity. Prompt administration of agents such as Paxlovid or remdesivir significantly reduced the risk of clinical deterioration. These results align with prior clinical trials and real-world evidence, emphasizing the importance of rapid testing and early initiation of treatment. However, limitations such as retrospective design and potential selection bias should be considered. Further randomized controlled trials are warranted to validate these outcomes across broader populations.

**Conclusion**

Early antiviral therapy in patients with mild-to-moderate COVID-19 significantly reduces the risk of hospitalization, ICU admission, and death. These results underscore the need for timely diagnosis and immediate therapeutic intervention, especially among high-risk groups. Public health policies should prioritize access to early antiviral treatment to lessen the burden on healthcare systems.

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