

# Awareness on current status of usage of ritonavir in the management of covid among dental students

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*J. Adv. Pharm. Technol. Res.*

## ABSTRACT

Ritonavir's pharmacodynamics raise questions regarding whether medication concentrations high enough to block the SARS-CoV-2 proteases can be obtained. Ritonavir may have a therapeutic benefit at any stage of the disease, although pharmacodynamic issues and the absence of clinical benefit data among hospitalized COVID-19 patients cast doubt on this claim. To study the awareness on current status of usage of ritonavir in the management of COVID among dental students. This study, which is survey-based, involved a sample of 100 individuals and was carried out on the website Survey Planet. The study included undergraduate and graduate dental students. The dental students were given a questionnaire containing 10 questions. Their responses were gathered. The number and percentage were used to summarize the data. Dental students from Chennai showed adequate knowledge of COVID-19 in the medical environment. Postgraduate students were more aware about the current status of usage of Ritonavir for COVID-19. This study demonstrates the urgent necessity for all health-care workers to regularly implement educational interventions and training program on infection control procedures for COVID-19.

**Key words:** Covid, innovative technology, pandemic, ritonavir, symptoms

## INTRODUCTION

A contagious illness was brought on by the SARS-CoV-2 virus called COVID in 2019. In December of this year, the first case was documented in Wuhan, China. Since then, it has expanded worldwide, resulting in an ongoing pandemic. Fever, headache, cough, exhaustion, breathing difficulties, and loss of smell and taste are all frequent symptoms.<sup>[1]</sup> The symptoms might be seen 1–15 days after

the virus has been exposed. Some COVID-19-infected people do not show any signs or symptoms. In older adults, severe symptoms may emerge. People occasionally endure a variety of side effects for a few months following their recovery, and organ damage has been seen in certain cases. Long-term research is needed to further understand the disease's effects.<sup>[2]</sup>

COVID-19 is spread through the air when humans inhale contaminated droplets and microscopic airborne particles. When people are close together, the danger of contamination is higher, but polluted air can be inhaled across longer distances, especially indoors.<sup>[3]</sup> COVID-19 transmission can also happen if you are sprayed or splashed with infectious fluids, or if you come into contact with contaminated surfaces like a table or chair.<sup>[4]</sup> Patients who are infected with

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Submitted: 09-May-2022

Revised: 27-Jun-2022

Accepted: 05-Aug-2022

Published: 30-Nov-2022

### Access this article online

Quick Response Code:



Website:

www.japtr.org

DOI:

10.4103/japtr.japtr\_345\_22

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**How to cite this article:** Ramamoorthy J, Ganapathy D, Pandurangan KK, Ahmed N, Maiti S. Awareness on current status of usage of ritonavir in the management of covid among dental students. *J Adv Pharm Technol Res* 2022;13:S228-32.

COVID-19 are infectious for around 20 days and can spread the virus even if they are asymptomatic. Coronavirus has been viewed as a global danger to public health in recent years.<sup>[5]</sup> No specific antiviral therapies were discovered for COVID-19. Ritonavir, an antiviral drug, is an effective agent which helps to inhibit the protease activity of coronavirus. However many of us are not aware of it and it requires many clinical trials to confirm the study. Most of the COVID-19 cases are mild with less or no symptoms. In those cases, supportive care such as taking analgesic medications such as paracetamol to relieve fever, body pain, and cough. Intake of proper food and water is essential. Hygiene practices and a balanced diet are recommended for fast recovery.<sup>[6-8]</sup>

Patients with severe symptoms require to be treated in a hospital. In some patients with lesser levels of oxygen, glucocorticoid dexamethasone is highly advised, because it reduces the chance of death.<sup>[9]</sup> Breathing support requires ventilation (noninvasive) and treatment in an intensive care unit. Remdesivir, an antiviral drug, is used in few of the countries, with certain limitations, although for patients who require ventilation, it is not recommended.<sup>[10]</sup>

Our team's extensive research and expertise have produced a number of high-caliber publications.<sup>[11-33]</sup> The study's goal is to assess dental students' awareness on the current status of usage of Ritonavir in the management of COVID-19.

## MATERIALS AND METHODS

For this online study, 100 dental students were taken as the sample size. The majority of them were from South India. The research setting has advantages such as data gathering flexibility and cost savings. A convenience sample methodology was used to distribute a multiple option questionnaire with an understanding of Ritonavir uses for COVID-19-100 Dental students studying UG and PG through an online platform known as Survey Planet. The participants' replies and demographic information were gathered and entered in Excel. The data from Excel were imported into SPSS to be analyzed statistically. The final data were summarized as a percentage, with bar graphs depicting the percentage of each response. Chi square was employed as the statistical analysis. The study received ethical approval from the institutional review board (Ethical approval no. IHEC/SDC/PROSTHO/21/116).

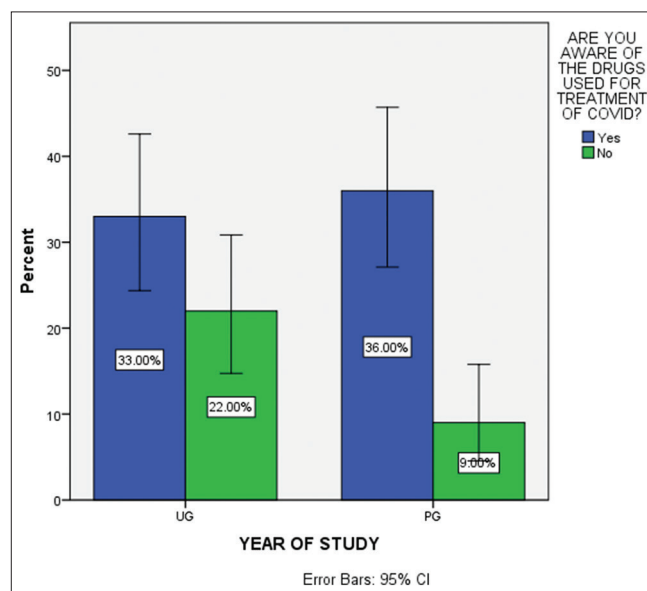
## RESULTS

In this study, 45% of students were postgraduates and 55% of students were undergraduates. Among UG dental students, 33% of them were aware of various drugs used in the treatment of COVID and among PG students, 36% were aware of the same [Figure 1]. Among UG dental students, 28% of them were aware of the uses of Ritonavir

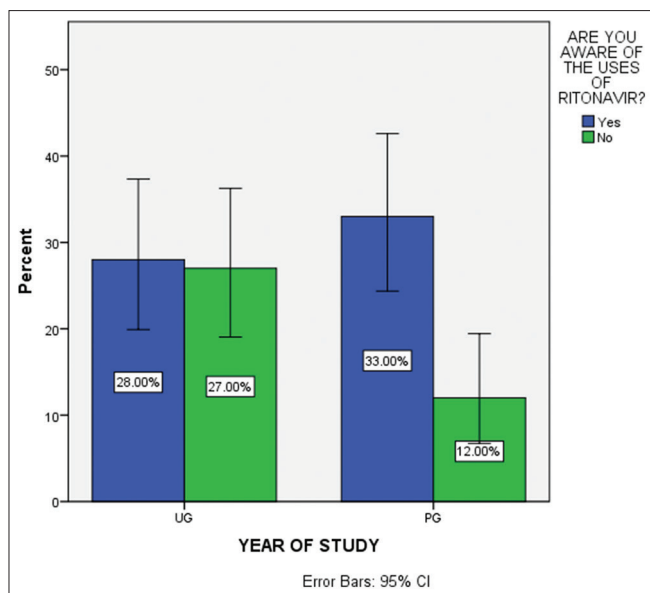
and among PG students, 33% were aware of the uses of Ritonavir [Figure 2]. 37% of UG dental students were aware that ritonavir is an antiretroviral drug and 23% of PG dental students were aware that ritonavir is an antiretroviral drug [Figure 3]. Only 18% of UG students and 29% of PG students were aware of the side effects of ritonavir [Figure 4]. 18% of UG students and 29% of PG students were aware that ritonavir can reduce the severity of acute respiratory distress syndrome due to SARS-CoV2 [Figure 5]. Majority of the UG (22%) and PG (19%) students have responded that Ritonavir is contraindicated in COVID patients with Porphyria. 18% of UG students and 33% of PG students were aware of the adult dosage of Ritonavir for COVID patients. 16% of UG students and 32% of PG students were aware of the previous clinical trials with ritonavir for the treatment of COVID patients. 26% of UG students and 32% of PG students responded that ritonavir can be a drug of choice used in the treatment of COVID patients.

## DISCUSSION

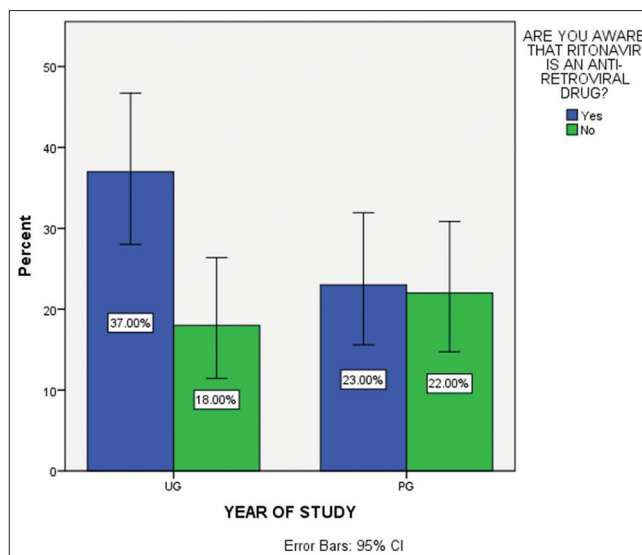
COVID-19 was well-known among Chennai dental students in their health-care context. In comparison to undergraduate students, postgraduate dental students had a larger percentage of correct solutions. There is a growing demand for urgent improvement of COVID-19 prevention methods, which includes pre- and postexposure prophylaxis, among targeted populations. Antiviral as well as antimalarial drugs are now being tested in several clinical trials to be used for the treatment of COVID-19.<sup>[34]</sup> *In vitro* studies suggest that the antimalarial medication hydroxychloroquine has antiviral



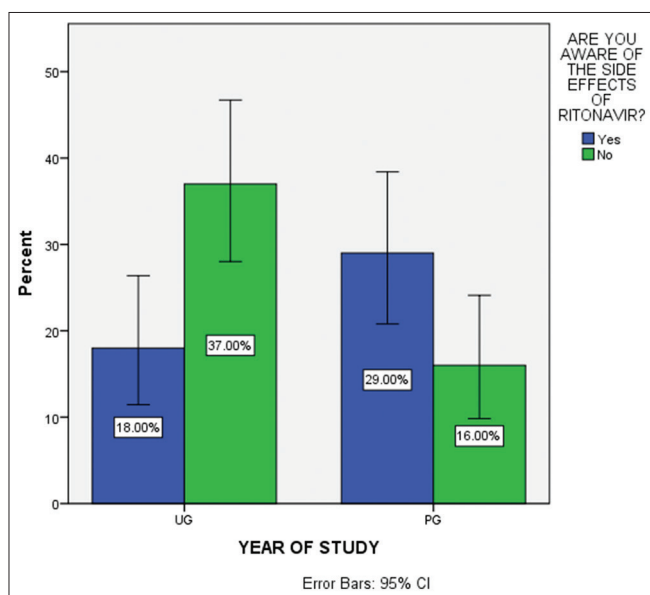
**Figure 1:** Bar graph showing the awareness on drugs used for the treatment of COVID among dental students. Among UG dental students, 33% of them were aware of the drugs used for the treatment of COVID and among PG students, 36% were aware of the drugs used for the treatment of COVID



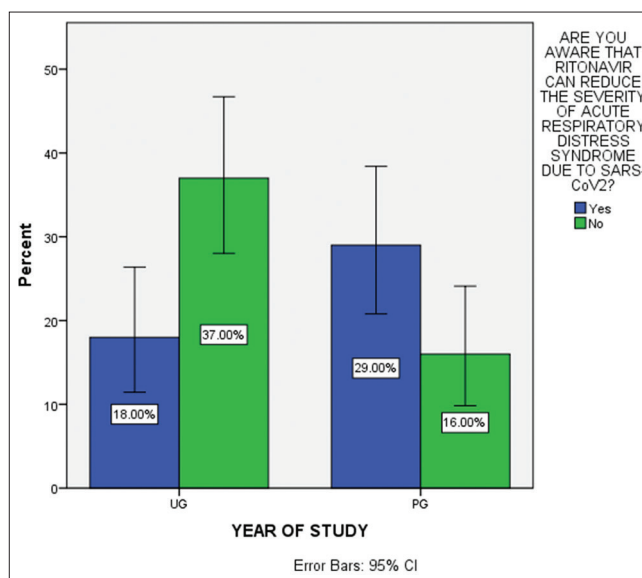
**Figure 2:** Bar graph showing the awareness on the uses of ritonavir among dental students. Among UG dental students, 28% of them were aware of the uses of ritonavir and among PG students, 33% were aware of the uses of ritonavir



**Figure 3:** Bar graph showing the awareness of ritonavir among dental students. Among UG dental students, 37% of them were aware that ritonavir is an antiretroviral drug and among PG students, 23% were aware that ritonavir is an antiretroviral drug



**Figure 4:** Bar graph showing the awareness on side effects of ritonavir among dental students. 18% of UG students and 29% of PG students were aware of the side effects of ritonavir



**Figure 5:** Bar graph showing the awareness of the effect of ritonavir on acute respiratory distress syndrome among dental students. 18% of UG students and 29% of PG students were aware that ritonavir can reduce the severity of acute respiratory distress syndrome caused by SARS-CoV2

properties against the coronavirus. As a result, it could be employed as a chemoprophylaxis for frontline personnel.<sup>[35]</sup>

The question regarding the usage of Ritonavir in the treatment in COVID-19 is an important one that requires further studies.<sup>[36]</sup> Clinical trials are being conducted on experimental treatments. Some, like hydroxychloroquine and lopinavir/ritonavir, were expected to be successful early in the epidemic. However, fewer studies have found them to be ineffective or even hazardous. Despite growing study,

there is still insufficient high-quality evidence to advocate so-called early treatment. Previous studies have also found that patients receiving lopinavir-ritonavir treatment who had serious complications such as acute kidney injury or requiring mechanical ventilation for respiratory failure were lesser compared to those patients not receiving any treatment. However, further studies are required to confirm whether Ritonavir in combination with Lopinavir given at a certain stage of the disease can reduce the severe complications of COVID-19.<sup>[37]</sup>

### Limitations of the study

Geographic limitations are one of the major factors for awareness study among the given population. Not much quantitative data can be obtained in this study. For better findings, the investigation can be carried out over a longer period of time and with a larger sample size than the current 100 dental students.

### Future study objectives

A large sample size of a diverse community of healthcare workers would benefit the study. The identification and evaluation of additional clinical trials should be accorded equal weight.

### CONCLUSION

This study found that postgraduate students were more knowledgeable about Ritonavir's use in the treatment of COVID-19. Formal instructional interventions and symposiums on hygiene and disease prevention for COVID-19 among all frontline employees are highly suggested. To raise awareness, hosting webinars on COVID-19 management for healthcare personnel and students would be a good idea.

### Acknowledgement

The authors acknowledge Saveetha University for all the help and support.

### Financial support and sponsorship

The present study is funded by the:

- Saveetha Institute of Medical and Technical Sciences
- Saveetha Dental College and Hospitals
- Saveetha University
- Ashok Leyland Private Limited, Chennai.

### Conflicts of interest

There are no conflicts of interest.

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