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Case Report

Successful Use of Favipiravir in A Comorbid Patient Associated with COVID 19 Pneumonia

Herrera García José Carlos[1,2]* Arellano Montellano Ek Ixel[1], Juarez González Luis Ignacio[2], Robles Terrez Guadalupe[2]

[1]*Department of Pneumology-Hospital Ángeles Puebla, Mexico*

[2]*SC Pulmonary Function Unit-Clinical Research Unit, Mexico*

***Corresponding author:** Jose Carlos Herrera Garcia, Pulmonary Function Unit SC-Clinical Research Unit, Mexico.

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Summary

Introduction

The SARS COV2 pandemic in 2020 associated with severe pneumonia has been the most prevalent clinical entity in the morbidity and mortality of the disease. New antiviral treatments have been used under different emergency protocols in order to reduce the spread of the virus and decrease its lethality. Since 2013 favipiravir is an antiviral used in the treatment of resistant influenza. Recently multiple studies in Japan, Russia and China have demonstrated its efficacy under the inhibitory mechanism of the viral RNA polymerase, effectively decreasing the multiplication of the virus.

Clinical Case

A 71-year-old female patient with a history of COPD E and use of low-dose supplemental oxygen and severe COVID 19 pneumonias in 2020. Presents a new episode of COVID 19 infection associated with pneumonia in 2023 corroborated by a positive COVID 19 test and X-ray chest with right lobar opacity associated with pneumonia. Treatment with Favipiravir was started at the established doses.

Clinical Evolution

After 5 days of treatment with favipiravir, the following occurred: 100% decrease in clinical symptoms associated with fever, general malaise, dyspnea on exertion, and improvement in hypoxemia, as well as laboratory symptoms. Good tolerance to the drug was also observed, without any serious adverse effect and improvement of the condition 7 days after the start of treatment.

Conclusions

Favipiravir as an anti-COVID 19 antiviral has a therapeutic role in early infection with improvement in clinical symptoms 7 days after disease onset.

Keywords: Favipiravir, Pneumonia, COVID 19

Introduction

Severe Acute Respiratory Syndrome Coronavirus 2 (SARSCoV-2) was first identified in Wuhan, Hubei Province, China [1]. and is the causative agent of the coronavirus disease 2019 (COVID-19) pandemic. Until now, severe pneumonia has been the etiology with the highest morbidity and mortality worldwide. We know that COVID-19 pneumonia is caused by the new virus, so pathophysiology and treatments are still in the process of demonstrating their efficacy,

tolerability, and adverse effects that allow for an ideal treatment for all patients. We can only help ourselves with the different vaccines and the immunity that they have created through these 3 years. At this time, new antivirals are urgently required to allow us to treat our patients early and avoid outcomes such as death [2].

SARS CoV-2 is a positive-strand RNA (+RNA) virus and is a member of the corona viridine family. SARSCoV-2 is a single-stranded RNA beta-coronavirus encoding an RNA-Dependent RNA Polymerase (RdRp) and proteases. Favipiravir, formerly known as T-705, is a prodrug of the purine nucleotide ribofuranosyl-5′-triphosphate favipiravir [3]. The active agent inhibits RNA polymerase, stopping viral replication [4]. Favipiravir was approved in 2014 by the Japan Pharmaceuticals and Medical Devices Agency under the trade name AVIGAN® for the treatment of new and re-emerging influenza virus infection [5]. Several studies describe its efficacy against other RNA viruses such as Ebola virus [6]. as well as its efficacy against rhinovirus and respiratory syncytial virus [7]. In vitro, the 50% effective concentration (EC50) of favipiravir against SARS-CoV-2 was 61.88 μM/L in Vero E6 Cells. Therefore, favipiravir has high potential for the treatment of patients with COVID-19 [8-11]. However, the research has been carried out in Asian countries with good clinical results, for which there has been good efficacy and safety, even without being able to register the effect of favipiravir in patients with COVID-19 within the Mexican population [12]. A case report of a Mexican patient with successful use of Favipiravir with the presence of COVID 19 pneumonia and comorbidities with good clinical results, tolerance and efficacy as well as no adverse effects is presented.

Clinical Case

A 74-year-old woman with a history of COPD E and use of supplemental oxygen for the past 5 years, arterial hypertension under chronic treatment. She has a history of pneumonia due to COVID 19 in 2020, with a serious evolution, being hospitalized for 2 weeks with severe desaturation and use of high-dose oxygen and multiple symptoms after a viral event. After that, with the development of COVID prolonged for 6 months and a chronic increase in the dose of oxygen. It is worth mentioning that she required psychiatric treatment for the following 6 months due to anxiety and post-traumatic stress. In June 2023, she suddenly presented fever, weakness, general malaise, sore throat, cough in fits, dyspnea at rest and desaturation, for which a COVID 19 test was carried out, being positive, chest x-ray with the presence of conclusive right lobar opacity in right lobar pneumonia. Increased dose of oxygen from 1 to 3 liters per continuous minute and C-reactive protein of 12 g/dl. Due to the history of use of multiple drugs in the previous symptoms and the presence of comorbidities, it was decided to start with AVIGAN (Favipiravir) for 14 days. On day 1 she presented improvement in symptomatic clinical symptoms, on day 5 a decrease in oxygen from 3 to 0.5 liters per minute and on day 14 improvement in the chest X-ray and normal levels of C-reactive protein in the laboratories (Table 1) (Figure 1,2).

Table 1

EVOLUTION OF THE DISEASE						
DAY	**0**	**1**	**2**	**5**	**10**	**14**
SINTOMA		INICIO DE AVIGAN				
FEVER	+++		+	-	-	-
ODYNOPHAGIA	+++		+	+	-	-
WEAKNESS	++		+	+	-	-
HEADACHE	++		+	-	-	-
COUGH	+++		++	+	+	-
DYSNEA	+++		++	+	-	-
PCT ng/ml	12		-	-	6	-

Note*:

+++: Very strong

++: strong

+: Weak

-: Null

PCT: C Reactive Protein.

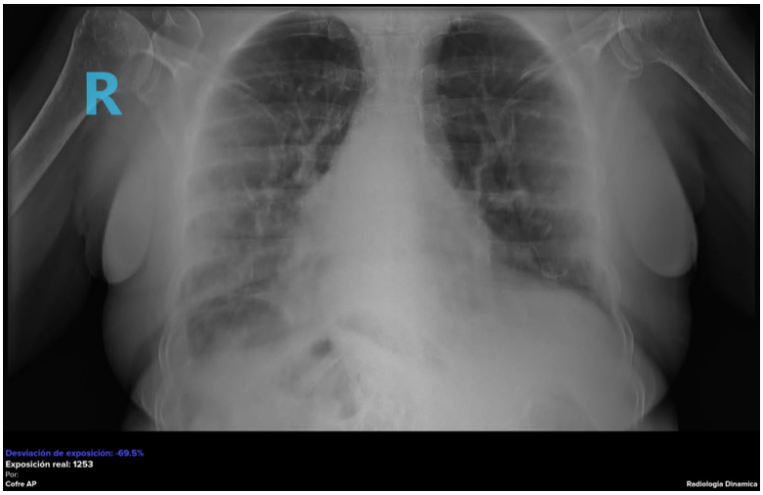

Figure 1: Initial chest X-ray. Right lobar opacity compatible with pneumonia is observed. (Day 0).

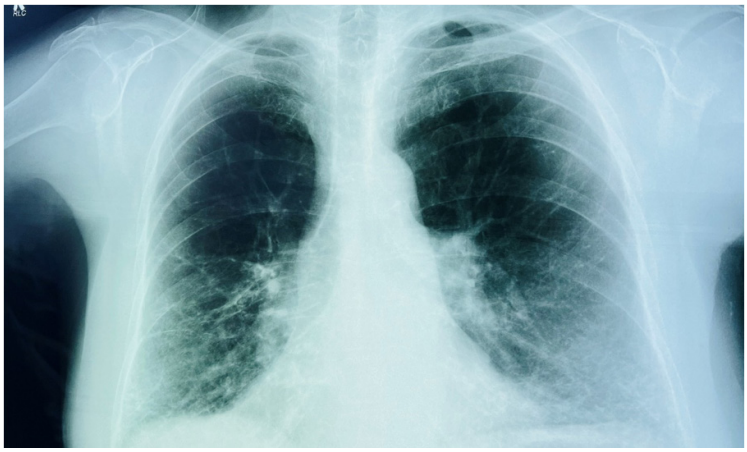

Figure 2: Chest X-ray (day 14) Without presence of Pneumonia.

Discussion

During the presence of the different waves of the pandemic from 2020 to 2021, different outcomes have been observed in patients with COVID 19, mainly in patients with severe pneumonia. This case demonstrates the efficacy of Favipiravir in patients with pneumonia and comorbidities such as COPD and hypertension. So far in Mexico there is no treatment established by guidelines for the treatment of acute COVID 19, Favipiravir is a good option in patients with acute clinical symptoms and comorbidities that allows us to start adequate therapy before presenting progression or deterioration of the disease taking into account that we have tools to determine the severity but we do not know with certainty which patient will present preventive morbidity and mortality. Favipiravir is a good option as a treatment for acute COVID 19.

Conclusion

Favipiravir is a good therapeutic option in patients with COVID 19 pneumonia and comorbidities with strong clinical results of symptomatic improvement in patients and prevention of disease progression in the short term.

Acknowledgments

None.

Conflict of Interest

None.

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