

Case Report

A case of COVID-19 pneumonia that did not worsen and was relieved by early administration of favipiravir and ciclesonide

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Introduction

A new type of coronavirus infection (COVID-19) was reported in Wuhan, China in December 2019, and as of March 2020, has spread explosively worldwide and has become a problem.

No specific treatment for COVID-19 has been established at this time, but in severe cases treatment with antiviral drugs lopinavir ritonavir, fabipivirvir, remdecir, inhaled steroids ciclesonide and antimalarial chloroquine have been tried. Here we report a case of COVID-19 pneumonia in which administration of favipiravir and ciclesonide in early onset was considered to be effective in improving symptoms. In this case report, written consent was obtained from the patient himself.

Case Report

[Case] Woman in her 40s

[Chief complaint] fever, cough, dyspnea

[Past history] None

[Ordinary drugs] None

[Smoking history] None

[Profession] nurse

[Present illness]

March 9, 2020 - March 12, contact with a patient with severe COVID-19 pneumonia wearing a High Flow Nasal Cannula (HFNC) (PPE: Personal Protective Equipment was properly worn). On March 17, evening, fever of 37.6°C, coughing and dyspnea were noted, and she visited our hospital on March 18. A chest X-ray showed an opacity infiltrating the left lower lung field, and a chest CT scan showed a ground-glass opacity in the lower left lobe (Figs. 1 and 2). On the evening of the same day, the result of RT-PCR was positive for SARS-CoV-2, and the patient was diagnosed with COVID-19 pneumonia.



Fig. 1. Chest X-ray at admission

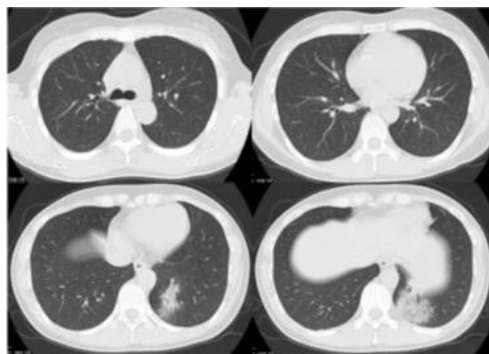


Fig.2 Chest CT on admission

Current illness on admission: clear consciousness, body temperature 37.6 °C, blood pressure 113/83mmHg, pulse 95/min, respiratory rate 18/min, SpO₂ 97% (room air). Did not hear any rales during chest auscultation. [Examination at admission]

WBC $4.2 \times 10^3/\mu\text{L}$ (Neutro 55.6%, Eosino 1.1%, Baso 2.1%, Mono 14.7%, Lympho 26.5%), Hb 12.2g/dL, Plt $22.6 \times 10^4/\mu\text{L}$, TP 7.4g/dL, Alb 4.1 g/dL, AST 18 IU/L, ALT 12 IU/L, LDH 180U/L, Cre 0.6 mg/dL, BUN 16.4 mg/dL, Na 137mEq/L, K 3.5mEq/L, Cl 99mEq/L, CRP 0.28mg/dL, KL-6 230U/mL, influenza antigen A (-), B (-), mycoplasma antigen (+), mycoplasma antibody (PA method) Less than 40 times, cold agglutination 8-fold, urinary pneumococcal capsular antigen (-), urinary legionella antigen (-)

[Post-hospitalization]

Administration of ciclesonide 1,200mg/day and favipiravir (3,600mg/day on the first day, day 2 to 1,600mg/day) were started on the same day. Since mycoplasma antigen was positive at the time of admission, administration of levofloxacin 500mg/day was started in consideration of the possibility of atypical pneumonia. Imaging findings showed an increase in ground-glass opacity in the lower left lobe on the second day of hospitalization (Fig. 3). Without the use of acetaminophen).

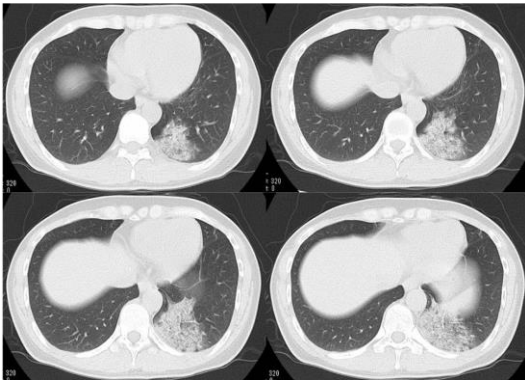


Fig.3 Chest CT on the day after admission, (March 19, 2020)

LDH rose on the second day of hospitalisation, but declined on the third day. On the 6th day of hospitalisation, a skin eruption occurred. However, in consultation with a dermatologist, there was no contradiction with usual sebum-deficient eczema instead of drug eruption. After that, fever and oxygenation did not worsen, and a plain CT scan of the chest on the 8th day of hospitalisation showed that the ground-glass opacity of the lower left lobe partially disappeared and partially infiltrated (Fig. 4)¹⁾.

She was discharged on day 10 of hospitalisation because of improvement in symptoms and a negative RTPCR test performed on days 9 and 10 of hospitalisation.

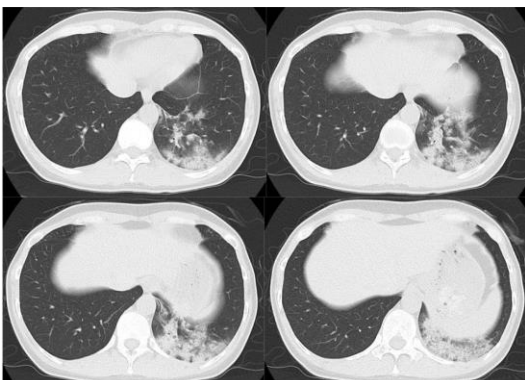
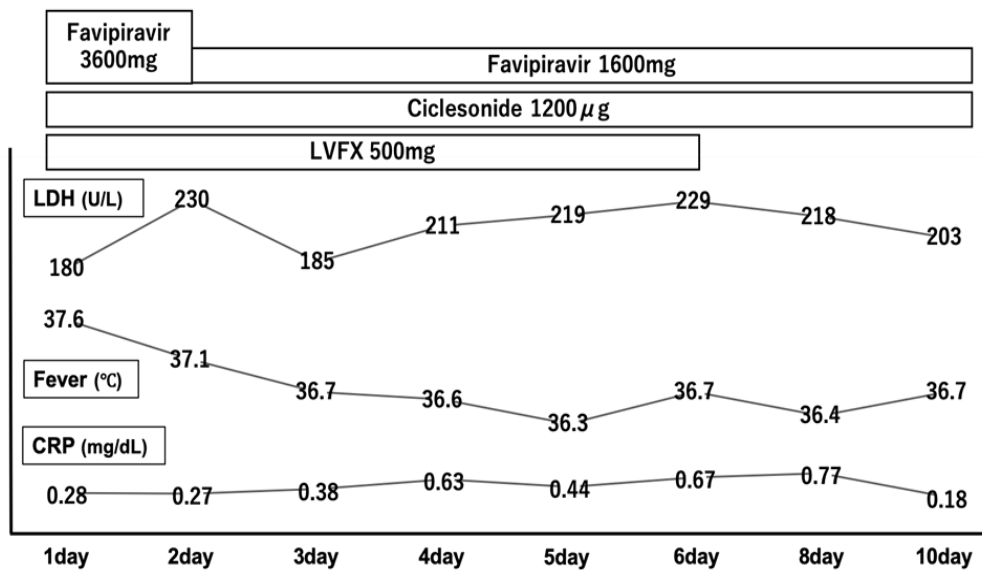


Fig.4 Chest CT on the 8th day of hospitalization

Clinical course of Fever, LDH and CRP



Discussion

COVID-19 As a risk factor for the severity of pneumonia, 50 years of age or older, hypoxemia, underlying diseases (diabetes, cardiovascular disease, chronic lung disease, immunosuppression), traction bronchodilation, intrathoracic lymphadenopathy, coexistence of pleural effusion is mentioned ²⁾. The Japan Association for Infectious Diseases also recommends the use of antiviral drugs in patients aged 50 years and older, hypoxemia, the above-mentioned underlying diseases, and cases in which symptomatic treatment alone tends to worsen³⁾. In this case, in his 40s, there was no underlying disease, but a firm pneumonia was observed. Considering the risk of severe cases, favipiravir and ciclesonide were started early. The clinical course has improved compared to the deterioration of the imaging findings, and it is judged that a good effect has been obtained. Early intervention may stop the disease from escalating and improve mortality. Of course, it is also important to avoid unnecessary administration of antiviral drugs. Fortunately, this case has passed without major side effects, but in order to judge early in which case antiviral drugs and ciclesonide should be administered, future accumulation of cases is desired.

In addition, the co-infection of COVID-19 and mycoplasma observed in this case is still rarely seen in case reports ^{4), 5)}. A large case study from China reported that 3.8% (104/2754 cases) of COVID-19 infected individuals had multiple infections with multiple pathogens⁶⁾. Although this case was subjected to RTPCR with a strong suspicion of COVID-19 infection based on contact history, it is considered to be a good example that COVID-19 infection must not be ruled out even in situations suggesting infection with other pathogens.

In this case, the major problem was that the infection of healthcare workers occurred despite appropriate precautionary measures against contact and droplets in addition to the standard precautionary measures. One cause is that the contacted COVID-19 patient had severe respiratory failure and was using HFNC for respiratory management. In addition to noninvasive positive pressure ventilation (NPPV), it is important to recognize that HFNC is also a high-risk procedure for the generation of aerosols.⁷⁾ Immediate management of intubation taking into account the risk of infection to healthcare workers is re-recognized as important.

Finally, I would like to thank the ward staff and laboratory staff who are dedicated to providing medical care despite the risk of infection. There is a concern that the number of COVID-19 patients will increase in Japan in the future, and we hope that this report will help treatment.

Reference

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