HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION WITH MULTIPLE COMORBIDITIES IN COVID-19 PANDEMIC ERA: A CASE REPORT

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ABSTRACT

Coronavirus disease-19 (COVID-19) and Human Immunodeficiency Virus (HIV) were pandemic diseases that affected the healthcare system worldwide. Decline immune system in HIV and accompanying opportunistic infection may worsen the outcome and prognosis of COVID-19 infection. Comprehensive diagnosis and treatment were crucial with HIV patients with a very low immune response. This is our first case report of 50 years old man recently known with HIV and confirmed COVID-19 from PCR swab at once. We found several comorbidities through a comprehensive examination of clinical and laboratory, such as bicytopenia (anemia and thrombocytopenia), acute renal failure, increased liver transaminase, and coagulation disorder (increased PT/APTT) D-dimer), hypoalbuminemia and extremely low CD4. Oral candidiasis, chronic B hepatitis, and lung tuberculosis also present as opportunistic infections in this patient. One dose of antiviral oseltamivir was given each day interval (considering the patient's renal function) accompanied with immediate resuscitation, multivitamins, fluconazole, and cotrimoxazole given. After resolving an acute condition, oral tuberculosis treatment was given, continued with antiretroviral therapy, and advised the patient to routine control in the outpatient department. Future research should address the significance of CD4 lymphocyte count or viral load to measure patients with HIV's immune system and clinical status, risk of opportunistic infection, and prognostic in this pandemic COVID-19 era.

Keywords: COVID-19; HIV/AIDS; Coinfection; Multiple Comorbidities.

INTRODUCTION

Coronavirus disease (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was initially reported in Wuhan, China, in December 2019 and has become a pandemic disease worldwide. As of July 3rd, 2021, the Health Ministry of Indonesia has reported 2,256,851 confirmed cases of COVID-19 and 60,027 deaths, with confirmed increasing cases each day. Human Immunodeficiency Virus (HIV) was also known as pandemic disease, and together with COVID-19, an infection may increase the risk of morbidity and mortality in HIV/AIDS patients.

The report of COVID-19 and immunodeficiency conditions is still limited.
tuberculosis and hepatitis and significantly increased risk of mortality in tuberculosis compared to control.\textsuperscript{4,5} The outcomes of HIV and COVID-19, such as disease severity, increasing morbidity, complications, and mortality, have not yet been conducted.\textsuperscript{6,7} In this case study, we reported the first case of a patient with HIV with multiple opportunistic infections and got infected by COVID-19.

**CASE ILLUSTRATION**

A 50-year-old man recently known had HIV infection admitted to the emergency room of M. Djamil Hospital Padang with breathlessness, dry cough, and fever increased since the day before. The initial complaint was felt three days earlier. Mixturation disorder was also felt in the last three days. At admission, the patient was short of breath with peripheral oxygen saturation of 98%, and oral thrust was found in the mouth. He denied a history of DUI or tattoo applied history. Swab PCR of COVID-19 was found positive. Laboratory results were shown blyctopenia marked by anemia and thrombocytopenia, an increase of APTT and D-dimer, hypoalbuminemia, and acute renal failure. The Hepatitis marker of HBsAg also showed reactive results and anti-HIV reactive.

We conclude this patient as HIV first known with confirmed Covid-19, oral candidiasis, chronic hepatitis B, acute on chronic renal failure with mild anemia caused by chronic disease. Immediate resuscitation was conducted to treat dehydration, and gene Xpert testing was performed for opportunistic tuberculosis infection. Antiviral oseltamivir 1x75 interval each day, azithromycin 1x500, bicarbonate, vitamins C and D, folic acid, and fluconazole drop. Results of GenXpert came out one day later, which showed positive results for M. Tuberculosis. Then the patient was given anti-tuberculosis (RHZE) drugs for 14 days, and after there were no side effects of TB drugs treatment, the patient was given FDC ARV therapy. Swab PCR of COVID-19 was negative after the third examination (three weeks hospitalized), there were no complaints after treatment, and the patient was discharged from the hospital.

**DISCUSSION**

The pandemic of COVID-19 and HIV has become global health problems with the risk of morbidity and mortality. Based on Shields et al. cohort study, 33 secondary immunodeficiencies (SID) cases that tested positive for COVID-19 through PCR showed poor outcomes with Case Fatality Rate (CFR) 39.2% and Infection Fatality Rate (IFR) 33.3%. This cohort study also found 11 deaths from 33 cases in SID patients, with an inpatient mortality percentage of 44% in the population with a median age of 64.5 years. This shows the high morbidity and mortality rates in patients with secondary immunodeficiency conditions, including patients with HIV.\textsuperscript{7,8}

Patients with HIV infection also have low immune systems, making them more susceptible to COVID infection with severe symptoms, especially HIV patients with low CD4 cells or high HIV RNA. Pilar Vizcarra et al. study involving 2873 HIV patients on ARV treatment showed that obesity and other comorbid factors such as diabetes and hypertension also affect the severity of COVID-19 in HIV patients. In this study, there was no significant relationship between CD4 levels, CD4/CD8 ratio, and viral load, so a cohort study with a larger sample is needed to understand better the impact of COVID-19 infection on patients with HIV.\textsuperscript{9-12}

This case report is the first case in a male patient diagnosed with HIV for the first time and had a COVID-19 infection. From the results of CD4 examination, it was found that CD4 levels were low, with a coinfection of tuberculosis, chronic hepatitis B, oral candidiasis with organ damage (lung, liver, and kidney) which showed that the patient was admitted to the hospital with severe symptoms. This is thought to be due to the impaired immune response in HIV patients, coupled with comorbidities/coinfections and the occurrence of immune overactivation. However, there is still insufficient evidence.
to explain this condition. In COVID-19 with HIV/AIDS patients, management of COVID-19 with severe symptoms requires antiviral. The alternate daily dose of oseltamivir was used to consider poor kidney function at admission. After rehydration, significant improved renal function was followed by clinical improvements such as no fever, shortness of breath, and other severe symptoms.

Management of HIV is still carried out by identifying TB coinfection and immediate oral anti-tuberculosis given with monitoring the patient's clinical condition. After the patient's condition is improved and a PCR swab of COVID-19 negative, ARV treatment can be given to the patient.13-15

CONCLUSION
The current COVID-19 pandemic can affect various aspects of life, especially health services, impacting HIV/AIDS patients. This case report shows a case of HIV with COVID-19 infection that requires accurate and adequate diagnosis and treatment so that the patient's condition can improve. Further studies are needed on the outcome of HIV patients with COVID-19 infection, especially concerning CD4 levels, viral load, and severity of COVID-19 symptoms, so that the patient's prognosis can be known early on.

REFERENCES