

# The Treatment of Angiotensin-converting Enzyme Inhibitors in Coronavirus Disease 2019 Patients with Hypertension: A Narrative Review

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## Abstract

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A new strain of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) induces coronavirus disease 2019 (COVID-19), a contagious respiratory disorder resulting in illness. Meanwhile, the World Health Organization classified this virus as a pandemic due to its rapid transmission and daily growing fatality rates. The condition is commonly manifested as clinical symptoms such as fever, cough, shortness of breath, and cardiovascular disease. Although there is a high probability of COVID-19 patients developing cardiovascular problems, such as hypertension, there is no established causative association between both conditions. In general, this type of comorbidity is extremely common in the elderly, which increases their risk of infection with the SARS-CoV-2 virus. The International Society of Hypertension issued the most recent guidelines for the treatment and management of hypertension in 2020, of which the most employed are angiotensin-converting enzyme inhibitors (ACE-i) and angiotensin receptor blockers (ARB). Therefore, this research aims to investigate the treatment of ACE-i/ARB in hypertensive individuals with COVID-19. The reason is that there have been some concerns expressed about the usage of these medications due to their influence on angiotensin-converting enzyme 2 (ACE2), which is the entrance site for SARS-CoV-2, particularly in the lungs. Subsequently, the results showed that discontinuing ACE-i/ARB is not advised, especially during the pandemic. This is based on data comparing mortality rates between participants on ACE-i/ARB and those not on ACE-i/ARB using cases and guidelines for managing hypertension during the pandemic.

## Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a viral pathogen that induces respiratory tract illnesses, and it is also known as coronavirus disease 2019 (COVID-19). This virus was initially identified in Wuhan, China, and 200 countries suffer within a few months. Furthermore, it infects the respiratory system and spreads swiftly through droplets and direct contact [1]. Therefore, the World Health Organization (WHO) labeled it a global pandemic, most notably for its rapid spread.

The first incidence of the virus in Indonesia was discovered in early March 2020. Recently, the number of cases continually increases by the day [2]. Consequently,

Indonesia is at a high risk of disease prevalence and rapidly growing mortality and morbidity rates.

COVID-19 disease is worsened by comorbidities, making it easier for the virus to damage the body. One of the most common morbidities that interact with this virus is hypertension [3]. Several research have shown a two-fold increase in the death rates of hypertensive patients with COVID-19 [4]. This is because this illness is very common among the elderly, who are also at a higher risk of contracting the SARS-CoV-2 virus. Although it remains unknown whether hypertension is a risk factor for the virus, blood pressure control remains an important consideration in reducing burdens associated with the disease.

Hypertension management is continuously developed, with various guidance options from