

Dengue and COVID-19: A risk of coepidemic in Ethiopia

To the Editor,

COVID-19's rapid spread has resulted in approximately 165 million confirmed cases and 3.4 million deaths worldwide.¹ Recently, as COVID-19 has spread around the globe and more adults have been exposed to it, there have been more reports of coinfections with other infectious diseases.^{2,3} Under the current pandemic, when health officials are mainly focused on containing the virus, every other infectious disease outbreak could obstruct COVID-19-fighting efforts and pose diagnostic challenges for medical personnel.^{4,5}

In this context, Ethiopia has been facing a serious public health problem regarding the dengue outbreak amidst the COVID-19 pandemic. Before 2013, there had been no records of the dengue virus in Ethiopia, but the virus has since spread to multiple regions.⁶ Dengue outbreaks were recorded in Ethiopia in 2017, 2019, and 2021, according to epidemiological evidence.⁷⁻⁹ Close to 160 confirmed cases were reported in Warder Woreda of Dolo Zone in February 2021, and 47 suspected cases were recorded in Dolo Ado Woreda of Liban Zone.⁷ Dengue fever can be transmitted all year; however, the danger is greatest during and immediately after the rainy season, which runs from June to August.⁸

In Ethiopia, the monsoon season has already begun, with record rainfall. The approaching monsoon season presents serious and logistical problems for Ethiopia's overburdened and under-resourced healthcare system. Furthermore, because of the recent rise in mobility and social interactions, COVID-19 cases are projected to increase.⁹ Until May 20, 2021, according to a recent report, Ethiopia has 268 035 cases and 4048 deaths.¹⁰ A swift and decisive action plan is urgently needed to combat the rising risks of coinfection.

On the other side, a shoddy sanitation system makes it easier for *Aedes* mosquitos to thrive.¹¹ This coincidental timing suggests a COVID-19 as well as dengue virus infection (DVI), a coepidemic situation. Given Ethiopia's weak healthcare system and economic instability, a dengue epidemic would pose significant challenges for which the nation is unprepared. We feel compelled to provide a few suggestions in this regard because prompt and firm action will help to alleviate the situation.

According to recent reports, the majority of symptomatic COVID-19 patients present with fever, cough, and headache, with some presenting with only fever.¹² The literature on dengue fever shows that the patients have a fever and sometimes a headache.¹³ COVID-19 patients have developed a skin rash, which is a common symptom of DVI.¹⁴ Furthermore, DVI and COVID-19 have identical laboratory characteristics.¹⁵

Given the high degree of similarity between two pathogens and the increased burden placed on healthcare professionals, the risk of

misdiagnosis is extremely high.¹⁶ It is important to remember that the two infections develop in different ways. In this sense, differential diagnosis is critical during pandemics. Since all viral diseases carry a high risk of morbidity and mortality if not treated promptly, misdiagnosis of either disease can worsen the patient's condition and add to the healthcare system's burden.








In Singapore, a few cases have been recorded in which patients tested negative for DVI but were later hospitalized due to persistent fever, with the final diagnosis revealing coinfection with dengue and SARS-CoV-2.¹⁷ In India, another case of coinfection-related death has been registered.¹⁸ In Thailand, a patient with petechial rashes was diagnosed with dengue fever, but advanced clinical diagnosis revealed that he was also infected with COVID-19.¹⁴

In light of the dynamic scenario of outbreaks, Ethiopia's underfunded healthcare system is on the verge of collapsing, posing a serious threat to the country's socioeconomic stability. We recommend that adequate steps be taken to distinguish patients with correct diagnoses.

We propose a few precautionary steps, in addition to the already defined guidelines, for the Ethiopian health authorities to consider during the COVID-19 pandemic. Vector control steps that are effective and timely, such as prioritizing spraying in high-risk areas, public knowledge of clinical manifestations of DVI, and mosquito-prevention methods, should be considered right away. Patients who present to healthcare providers with symptoms, such as fever, rash, headache, or respiratory disorders must be tested using the DVI and COVID-19 diagnostic tools. Furthermore, these patients should be treated in tandem, with DVI receiving fluid replacement therapy and COVID-19 receiving separate medications.

As part of their emergency preparedness, all hospitals should consider developing treatment protocols and algorithms for suspicious cases. Antibodies testing and polymerase chain reaction testing facilities, for example, must be expanded. Since there have been reports of medication shortages during the pandemic, drug regulators should concentrate their efforts on ensuring the availability of vital medicines, especially in dengue hotspots. Since both diseases necessitate isolation wards in hospitals, health officials should make the appropriate arrangements.

Since coinfecting patients are the source of both diseases, they must be held in a separate hospital. Authorities should establish water management SOPs like covering the gutters and sewerage lines for timely road and place cleaning to prevent any stagnant water, and the government should finance authorities.

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