

## Editorial

### Obstacles from the synchronicity of Dengue and Corona virus infections

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Dengue is an infectious disease caused by any of the four serotypes of dengue virus (DENV) which is an imperative human arbovirus being transmitted by the bite of an infected *Aedes* species mosquito. Now a days, it is leading cause of morbidity and mortality in many tropical and sub-tropical regions of the world. [1] Moreover, there are many significant reasons behind the curtain which need to be ponder upon so that we can somehow control its ravaging effects on one's health. SARS-CoV-2, the etiologic agent of COVID-19, was declared as a pandemic agent by the World Health Organization (WHO) [2]. Moreover, the coronavirus disease of 2019 had a profound impact on dengue cases around the globe. There were around 5.2 million cases of dengue reported in 2019, according to the WHO. However, the number of cases lessened in 2020 and 2021. The worldwide reduction in the number of dengue cases is the indicative of a significant relationship between COVID-19- related restricted movement and decreased dengue risk. These outcomes further confirm that dengue virus infection escalates because of human mobilization, with transmission occurring in shared areas outside the home through mosquitoes. Also there are many aspects to look upon, related to dengue virus and corona virus co-existence and their relics remains a mystery to be resolved.

Dengue virus and corona virus infections can cause similar symptoms at early onset of the disease so at times they can be misinterpreted such as hyperthermia, myalgia, headache, fatigue, abdominal pain, diarrhoea, vomiting and sore throat more often seen in these infections [3]. Both of these can cause severe life threatening illness so they must be dealt accordingly especially by the healthcare providers. Aside from the preliminary closeness in the clinical presentation, there are several resemblances between these two infections such as certain risk factors for severe illness, immune-pathogenesis, antibody and T cell responses, cytokine storms, endothelial dysfunction and multi-organ failure. Owing to the co-existence of DENV and SARS-CoV-2, both illnesses have similar clinical manifestations, therefore, a substantial clinical misdiagnosis should be considered during the initial 10 days after the viral infection [4]. Thus, it is obligatory to identify and discriminate the patients with COVID-19 from the cases of dengue appropriately to improve patient condition. Moreover, the test commonly performed for their diagnosis is CBC and, vaccines to prevent spread of infection are still under trial basis. Hence, patients should be closely observed for the warning signs distinguishing dengue infection and corona virus infection from each other. Dengue warning signs include persistent vomiting, mucosal bleeding, and dyspnoea, fatigue, postural hypotension, liver enlargement and progressive increase in haematocrit. COVID-19 warning signs include dyspnoea, continuous pain chest, confusion, insomnia, and cyanosis.

An economical, quick and sensitive test of differentiating SARS- CoV-2 and DENV, is the need of the hour. There is also an urgent requisite to establish more diagnostic centres to carry out specific Reverse Transcription Polymerase Chain Reaction (RT-PCR) testing for SARS-CoV-2. Thorough receptor sequencing investigation would be essential to demonstrate the probable cross-reactivity between DENV and SARS-CoV-2 antibodies and to

demonstrate the immunological relations between the antibodies produced by DENV infection and their influence on COVID-19 and others.

Perceptions apart from these that need to be considered are vector control and fluctuations of DENV serotype during the COVID-19 pandemic. Therefore, countries that are facing dengue outbreak should make sure to maintain the vector control measures in this period. One of the most possible approach is to lessen mosquitoes breeding spots in and around the households. Continuous dengue observation needs to be put in a track to overview transmission dynamics of dengue infection.

In developing countries, with limited resources, the commonly executed laboratory tests, such as the CBC and biochemical tests should be evaluated as the potential tests to differentiate between dengue and COVID-19. Apart from these, procedures should be approved such as, hefty funding for research in epidemiology, diagnostics and vaccine development research. Viral identification tests, careful surveillance and fumigating enormous regions should be done on top priority basis to identify and restrict the spread of viruses.

Repeated laboratory testing for a more authenticate source of diagnosing and distinguishing the DENV and SARS-CoV-2 should be adopted. Even though serum antibody test may be used for differential diagnosis, healthcare providers must be cautious to exclude false positive cases [5].

For general population, dengue awareness display material including the preventive measures, can be circulated in public spaces to provide wakefulness about dengue virus infection. More notably, counselling and mental health hotlines are to be considered for healthcare providers who face exhaustion.

## References

1. Harapan H, Ryan M, Yohan B, Abidin RS, Nainu F, Rakib A, *et al.* Covid-19 and dengue: Double punches for dengue-endemic countries in Asia. *Rev Med Virol* 2021; 31(2): e2161.
2. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19-11 2020.
3. Malavige GN, Jeewandara C, Ogg GS. Dengue and COVID-19: two sides of the same coin. *J Biomed Sci* 2022; 29(1): 48.
4. Osuna-Ramos JF, Reyes-Ruiz JM, Ochoa-Ramírez LA, De Jesús-González LA, Ramos-Payán R, Farfan-Morales CN, *et al.* The usefulness of peripheral blood cell counts to distinguish COVID-19 from dengue during acute infection. *Trop Med Infect Dis* 2022; 7: 20.
5. Santoso MS, Masyeni S, Haryanto S, Yohan B, Hibberd ML, Sasmono RT. Assessment of dengue and COVID-19 antibody rapid diagnostic tests cross-reactivity in Indonesia. *Virol J* 2021; 18(1): 1-5.

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