

Cocirculation of COVID-19 and dengue: A perspective from Pakistan

Coronavirus disease 2019 (COVID-19) was first reported in Wuhan, China in December 2019, and has now become a serious public health threat for 213 countries across the globe. As of September 3, 2020 the global toll of confirmed COVID-19 cases surpassed 26 million including 0.8 million deaths.¹


In Pakistan, the total number of COVID-19 cases rose to 297,014 including 6,328 deaths as of September 3, 2020.¹ Unfortunately, the endemicity of dengue in Pakistan has been sustained for decades with the history of repeated dengue epidemics. According to the Ministry of National Health Services, Regulations and Coordination, a total of 132,977 confirmed dengue cases including 588 deaths have been documented between 2010 and 2019.² During 2019 dengue epidemic in Pakistan, 52,485 confirmed dengue cases including 91 deaths³ have been reported compared to 3,204 cases and two deaths in 2018.² It is estimated that the actual number of cases may be much higher as the majority of dengue infected individuals remain asymptomatic. Surprisingly, during the month of March 2020, more than 416 confirmed dengue cases have been detected indicating an earlier onset compared with the postmonsoon peak season.⁴ A total of 384 dengue cases were reported from Sindh province of Pakistan including 354 (92%) from Karachi city which is considered as an epicenter of dengue outbreaks for the last 30 years.⁵ During the month of July 2020, more than 70 confirmed dengue cases were reported from Lahore city of Punjab province, considered as another major hotspot for dengue epidemics since 2010.⁶ During the month of August, three confirmed dengue cases were reported from Peshawar city of Khyber Pakhtunkhwa province and 123 confirmed cases from Baluchistan province (unpublished data). It is speculated that the number of confirmed dengue cases may rise tremendously due to lack of active surveillance and diversion of entire efforts towards the fight against COVID-19. Dengue cases in Pakistan start to appear at the beginning of monsoon season and peak between September and October each year. This year, however, dengue cases coappeared with the COVID-19 infections and may lead to a serious public health crisis calling for cautious assessment of resource allocations and timely interventions to reduce the virus spread and restrict further transmission. Notably, dengue and COVID-19 present similar characteristics and could not be differentiated clinically.

Recently the coinfection of COVID-19 and dengue has been reported from Pakistan and results of the study showed that the rate of mortality is comparatively higher in COVID-19 patients

coinfected with dengue compared to patients diagnosed with COVID-19 only. Likewise, significant difference in the hematological and biochemical markers between the dengue coinfecting and COVID-19 mono-infected patients was noted. For instance, severe thrombocytopenia was observed in the coinfecting patients as compared to the mono-infected patients. The high percentage of bilirubin, alanine aminotransferase, creatinine, prothrombin time, urea, and creatine phosphokinase was noted in the coinfecting group.⁷ The coinfection of COVID-19 and dengue has already been reported from other countries such as Brazil, France, and India.⁸⁻¹¹ For a country like Pakistan with a weakened healthcare system, infectious diseases have always remained a significant challenge augmented by the emerging and re-emerging pathogens after every few years. Community-driven interventions have always remained a high priority to combat challenges like COVID-19 and dengue to complement traditional surveillance and response approaches. Finally, the health authorities should prioritize nation-wide measures to control COVID-19 and dengue epidemics in the country by implementing intensified surveillance to assess drivers of COVID-19 and dengue spread. At the same time, rapid and accessible diagnostic screening and coordinated efforts for real-time data-driven decisions are required to help control and restrict the burden early on.

CONFLICT OF INTERESTS

All the authors declared that there are no conflict of interests.

Muhammad S. Rana 
 Muhammad M. Alam
 Aamer Ikram
 Syed S. Z. Zaidi
 Muhammad Salman
 Anan Khurshid

National Institute of Health, Islamabad, Pakistan

Correspondence

Muhammad S. Rana, Department of Virology, National Institute of Health, Park Rd, Chak Shehzad, Islamabad 45500, Pakistan.
 Email: ranavirologist@gmail.com

ORCID

Muhammad S. Rana  <https://orcid.org/0000-0002-3665-5944>

REFERENCES

1. COVID-19 Coronavirus Pandemic. 2020. <https://www.worldometers.info/coronavirus/>. Accessed August 10, 2020.
2. Rana MS, Alam MM, Salman M, Ikram A. Prevention and control of escalating dengue epidemics in Pakistan. *J Med Virol*. 2020;92(8): 927–928.
3. Outbreak update – Dengue in Pakistan, 1 December 2019. 2020. <https://reliefweb.int/report/pakistan/outbreak-update-dengue-pakistan-1-december-2019>. Accessed August 10, 2020.
4. Pakistan confirms 416 dengue cases in 2020! 2020. <https://dailytimes.com.pk/582988/shaan-shahid-plays-the-role-of-a-detective-fed-up-of-dengue/>. Accessed August 10, 2020.
5. PCPD reports 28 more dengue cases in Karachi. 2020. <https://mmnews.tv/pcpd-reports-28-more-dengue-cases-in-karachi/>. Accessed August 10, 2020.
6. As Punjab records 70 dengue cases in 30 days, state may not be prepared for another outbreak. 2020. <https://www.hindustantimes.com/cities/as-punjab-records-70-dengue-cases-in-30-days-state-may-not-be-prepared-for-another-outbreak/story-WkH6Qs9zbsBFje6sRQfluK.html>. Accessed August 10, 2020.
7. Saddique A, Rana MS, Alam MM, et al. Emergence of co-infection of COVID-19 and dengue: a serious public health threat [published online ahead of print August 12, 2020]. *J Infect*. 2020. <https://10.1016/j.jinf.2020.08.009>
8. Verduyn M, Allou N, Gazaille V, et al. Co-infection of dengue and COVID-19: a case report [published online ahead of print August 03, 2020]. *Plos Negl Trop Dis*. 2020. <https://doi.org/10.1371/journal.pntd.0008476>
9. Epelboin L, Blondé R, Nacher M, Combe P, Collet L. COVID-19 and dengue co-infection in a returning traveller. *J Travel Med*. 2020; 27(6):taaa114. <https://doi.org/10.1093/jtm/taaa114>
10. Covid-dengue 'co-infections' are Bengal's new challenge as doctors say treatment very tricky. <https://theprint.in/health/covid-dengue-co-infections-are-bengals-new-challenge-as-doctors-say-treatment-very-tricky/477020/>. Accessed August 10, 2020.
11. Bicudo N, Bicudo E, Costa JD, Castro JALP, Barra GB. Co-infection of SARS-CoV-2 and dengue virus: a clinical challenge [published online ahead of print August 26, 2020]. *Braz J Infect Dis*. 2020. <https://doi.org/10.1016/j.bjid.2020.07.008>