

Dengue amidst COVID-19 in India: The mystery of plummeting cases

To the Editor,

India has been fighting COVID-19 for more than a year now, facing numerous difficulties and losses. The country's health system, despite adversities owing to the lack of resources and trained professionals in the poorest regions,¹ has proven to be efficient enough to bring down, over time, the growing trends of this disease.² Channelling the available health resources to fight COVID-19 seemed plausible and proved effective indeed. However, with the saturation of health resources and the justified intense heed towards COVID-19, India is in danger of worsening the epidemiological profile of dengue in the country.

In recent years, dengue, an arbovirus transmitted by arthropods, has shown an increasing trend in the number of cases in the country, therefore requiring urgent public policies to curb the disease. However, in 2020, as the maximum capacity of health resources, such as hospitals, laboratory tests, labour, and epidemiological surveillance, was allocated to treat COVID-19 cases, there was a major setback in terms of coping, diagnosis, and treatment of other diseases, including dengue.

Regarding dengue in India, the situation becomes evident on comparing the epidemiological reports from the past 5 years. 2020 saw an evident decrease in dengue cases, with Maharashtra showing a marked decline of 84%, when compared to 2019.³ Two possible factors could have contributed to this reduction in number of cases. One being the lower transmission of the vector due to lockdown and social distancing, and the other being a significant disparity in the reported data of dengue cases. This disparity can be attributable to an increased attention to the current pandemic, under-diagnosis due to somewhat similar clinical picture to COVID-19 and the lack of available tests owing to a struggling health care system amidst the pandemic.

Several factors corroborate for the second hypothesis to be the more plausible, with the diagnostic complexity between the two being very challenging for the health care professionals as both diseases exhibit nonspecific symptoms like fever, headache, body pain, abdominal pain, malaise, etc., and, therefore, making a differential diagnosis is an arduous feat in itself. Additionally, using complementary tests at that point can prove to be an ineffective strategy. Several studies have shown that both the viruses share similar biochemical and haematological findings, such as leukopenia and thrombocytopenia. In addition, a false-positive IgM for dengue has also been identified in serological tests in patients with confirmed COVID-19.⁴⁻⁶

Despite a similar clinical presentation, these diseases differ regarding treatment and potential complications. The irrational pharmacotherapy as a result of a misdiagnosis can be fatal for a patient. For example, in moderate to severe COVID-19 cases, LMWH can be used for resolution/prevention of thrombosis. In contrary to that LMWH in a dengue patient will cause an increased risk of bleeding.⁷

The situation is quite alarming, because erroneous diagnoses, in addition to causing a delay in the initiation of adequate treatment and irrational pharmacotherapy, can also lead to increased mortality rates, greater complications, and hence an increased burden on the health system. A similar situation has been identified in Brazil and Pakistan, where the overlap of symptoms of COVID-19 and other diseases, such as chikungunya,⁸ typhoid fever,⁹ and dengue itself,¹⁰ has led to their underdiagnoses.

To resolve this situation, it is necessary to improve the ability to detect and differentiate cases of dengue and COVID-19. For this purpose, double laboratory examination protocols can be used in cases where there is doubt in the diagnosis or suspicion of co-infection by dengue and COVID-19, thus decreasing the chances of underdiagnoses of one of the diseases. It is also necessary to use more accurate diagnostic test kits, reducing the chances of errors inherent to the technique. Well-planned strategies for the clinical management and diagnosis of dengue and COVID-19 co-infections should also be implemented.

To reduce the burden of dengue epidemic in the country, it is necessary to implement measures that allow the early detection of dengue cases, especially severe cases, to allow an adequate early management. Therefore, health teams, both in primary care and in reference services, need to be trained in the early and more reliable diagnosis of cases.¹¹

These actions, associated with a more effective case reporting system, can help to obtain more accurate estimates of the true burden of the disease in the country. Furthermore, it is necessary to improve the surveillance and epidemiological and entomological control services, to detect and predict the outbreaks of the disease and co-infections early, and to carry out preventive actions directed to the places of greatest risk for the development of vectors and propagation. of the disease.¹¹

In addition, community health workers can promote educational actions that teach the population, especially those in high-risk areas, how to apply simple measures to reduce dengue breeding sites, such as the correct domestic water management, can be effective in helping to control of vectors.¹¹ Concomitantly, it is necessary to strengthen prevention campaigns against COVID-19, mainly with a focus on hygiene

and social distance measures. The media and social networks can be used to disseminate scientifically proven information on both topics.


Therefore, the current epidemiological situation of dengue in India must be addressed with multidisciplinary health responses involving different spheres of society. These responses should focus on public health strategies for prevention, epidemiological surveillance, early and more reliable diagnosis, training of health professionals and educational actions for the population. From this, it will be possible to lighten the burden of both epidemics on the country's public health system.

AUTHOR CONTRIBUTIONS

Mohammad Yasir Essar, Shoaib Ahmad, and Rachana Phadke: conceptualized the idea and designed the manuscript. Rachana, Anmol, Sude, and Kartik: wrote the first draft. Ana, Mehr Adeel, Hashim, Yasir, and Shoaib: revised the manuscript and made significant additions. All authors revised and approved the final draft.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.


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