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Guest Editorial

The twin dilemma: Zika virus Infection and COVID-19 in India- An Indian perspective

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These are the times when the world is confronted with the ghastly situation of COVID -19 which has created utter uncertainty and has taken global health resources for a toss. The state of affairs is more alarming in India given that the populace lacks consciousness regarding public health compounded with multiple factors like a health system that seems to fall out of gear every time any epidemic looms and resources that always seem falling short of adequate.[1] In India, from 3 January 2020 to 15 November 2021, there have been 34,447,536 confirmed cases of COVID-19 with 463,655 deaths, reported to WHO. As of 8 November 2021, a total of 1,095,926,470 vaccine doses have been administered.[2] Morever the advent of infections like Mucormycosis and more recently illnesses like Dengue and Zika virus have crippled the already fragile and overburdened health system of India and has brought into light the lacunae in the current healthcare scenario and the areas with gross scopes of improvement.[3,4] Additionally the diversion of the infrastructure resources for COVID -19 on a huge scale which were meant for prevention, surveillance, screening and treating other infectious diseases was a big blow for any advances in the control programmes for the diseases that required the necessary interventions for their regress in our country.[5]

The first case of Zika was reported in Kerala on July 8, 2021, after a 24-year-old pregnant woman sought treatment with symptoms like fever, headache, and red marks on the skin, leading to the detection of the virus. On 31 July 2021, Maharashtra state also reported its first Zika laboratory-confirmed case from Belsar. With the first case of Zika Virus being reported on October 23, 2021, in the industrial city of Kanpur, various other cases have been added to the list since then making it currently a hot spot for Zika virus.[6] By November 15, 2021 Uttar Pradesh's Kanpur had reported a total of 123 cases of Zika Virus and 96 active cases.[7]

Zika virus, positive-stranded RNA virus belongs to family Flaviviridae (genus flavivirus) and uses arthropod vectors for its transmission. The virus spreads in humans primarily by the bite of Aedes mosquitoes (aegypti and albopictus) but other routes of transmission like sexual contact, blood transfusion, through blood products and transplacental are also common.[8] In most cases Zika infection is asymptomatic with an incubation period ranging from 3 to12 days.[5] The understanding about Zika virus infection is minimal in contrast to other infectious diseases in the Indian population. Protracted community transmission of the zika virus can occur further contributing to increased case load. Thus the clinical itinerary of Zika virus infection can lead to many public health concerns.[8] The most common symptoms of Zika virus infection are fever, muscle and joint pain, headache, nausea, vomiting, rash, conjunctivitis, and general malaise.[9] Majority of these clinical presentations often overlap with the clinical features of COVID-19 infection, malaria, other arboviral

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Table 1: Clinical and laboratory parameters of patients with common acute febrile illnesses in India.

Parameters	Dengue	Chikungunya	Scrub typhus	Leptospirosis	Malaria	Enteric fever
Clinical	High-grade fever, retro-orbital pain, petechial rash, bleeding manifestations	High-grade fever, arthralgia, itchy rash	Fever, rash, eschar	Fever, jaundice, conjunctival suffusion	Fever with chills and rigours, splenomegaly	Step ladder fever, diarrhoea/constipation, splenomegaly, rose spots
Complications	Serositis, ARDS, encephalitis	Post-chikungunya arthritis	ARDS, encephalitis, renal failure	ARDS, encephalitis, renal failure	ARDS, encephalopath, renal failure	Encephalopathy, intestinal perforation
Haematological	Leucopenia, thrombocytopenia	Leucopenia	Leucocytosis, thrombocytopenia	Leucocytosis, thrombocytopenia	Anaemia, thrombocyto penia	Leucocytosis/ leucocytopenia, thrombocytopenia
Biochemical	Transaminitis		Renal failure	Increase in conjugated bilirubin, renal failure	Increase in unconjugated bilirubin, hypoglycaemia	Transaminitis
Diagnostic test	NS1 antigen less than 5 days and IgM ELISA after 5 days	PCR before 5 days and IgM ELISA after 5 days	Immunofluorescence assay, PCR	PCR in the first week, IgM ELISA in the second week	QBC, antigen test	Blood culture in the first week, Widal test in the second week

diseases like dengue, chikungunya, leptospirosis, enteric fever and scrub typhus.[10] Certain features that may help in differentiating Zika Virus Infection from other differentials in India are summarized in Table 1.

The effects on pregnant women can be catastrophic as congenital Zika syndrome can occur comprising of microcephaly and other congenital malformations. The other complications that can occur during pregnancy include preterm birth and miscarriage.[11] A country which already has an increased maternal mortality rate; with such infections these proportions could further swell up.[12] Rare complications include Guillain–Barré syndrome, neuropathy and myelitis. Guillain–Barré syndrome mostly is a post-infectious occurrence after many bacterial and viral infections, including COVID-19.[13] Thus differential diagnosis for both COVID-19 and Zika infection should be taken into consideration while investigating such cases.

Many factors may contribute to the rising Zika Virus trend in India chiefly the climate, circulation of the mosquito species, prevalence of other arboviral infections, large population and overcrowding, lack of proper sanitation particularly in the economically weaker sections of the society and above all lack of herd immunity to Zika virus. It is estimated that about 465.7 million people in India would be at peril if a major outbreak of Zika virus occurs.[14,15] Hence, programmes aimed at spreading awareness among the populace particularly pregnant women regarding Zika virus infection, control of incriminated vectors, safe transfusion and sexual practices can go a long way to curb such infections in India particularly when our health infrastructure has already been dented by the second COVID-19 wave. Newborns with the symptoms of this infection may require additional medical as well as economic support which can further take a toll on the nation's economic and health infrastructure.

Actions both at the top level like formulation of necessary regulations and at the ground level such as involvement of accredited social health activists (ASHA) in spreading awareness to priority groups of population regarding the prevention and modes of transmission of Zika virus can play a key role in halting the upsurge of cases.[5] The concept of prevention of the disease by the use of repellents, bednet use, standing water treatment tablets, etc. may also be suggested. Health authorities may also advise the use of larvicides and insecticides to reduce mosquito populations and disease spread. Sexually active men and women should be counseled correctly about Zika virus infection and a full range of contraceptive methods should be made accessible to them so that they can make an informed choice about whether and when to become pregnant in order to prevent congenital Zika syndrome and other potential adverse pregnancy and foetal outcomes. Pregnant women should be encouraged to attend scheduled appointments and enhanced antenatal care and follow-up,

including ultrasound imaging to detect microcephaly and other developmental anomalies associated with Zika virus infection, in accordance with the state/national response plan.[6,10]

In summary, the most effective and long-term preventive and control measure for Aedes aegypti as recommended by the authorities is 'source reduction involving community participation.[9] These Zika virus cases may only represent 'tip of the iceberg' and many subclinical cases may be present; hence, an efficient surveillance network needs to be initiated, but in a country like India, such ventures are cost-intensive and require political commitment. Despite this there should be continued efforts both legislative and at lower rungs toward vector control and gross surveillance measures should be implemented to prevent further large-scale outbreaks in India.

Conflict of Interest

None.

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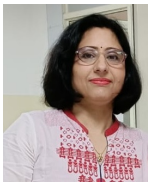

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