

Editorial

Infectious Diseases in Rajasthan: An Overview

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Tuberculosis is an immense public health problem in India. In 2020, the Government of India has renamed the Revised National Tuberculosis Program (RNTCP) as National Tuberculosis Elimination Program (NTEP). Rajasthan, with 484 cases per lakh people, had the second highest TB prevalence in India as per the TB prevalence survey reveals.¹ To eliminate TB in India by 2025, five years ahead of the global target, a framework to guide the activities of all stakeholders including the national and state governments is relevant. The state is an active partner of the National strategic plan for tuberculosis 2017-2025' (NSP) for the control and elimination of TB in India by 2025. According to the NSP, TB elimination has been integrated into the four strategic pillars of "Detect-Treat-Prevent-Build" (DTPB). Treatment defaults are a major challenges for the programme.² Proper counselling about drug resistant tuberculosis, need for regular treatment and the duration of treatment should be done at each level of the health care system.

Rajasthan and its neighbouring states are reporting dengue cases regularly. Some of the parts of the state reports laboratory confirmed cases year-round. The burden of dengue infection in India was heterogeneous, with evidence of high transmission in northern, western, and southern regions. The seroprevalence of dengue in the western region was more than 60%.³ Last year the state reports more than 20 thousand cases and 96 deaths.⁴ The health care system of the state is ready to respond to a dengue outbreak at all times. However, deaths cannot be prevented.

There is a continuous decrease in lab confirmed malaria cases as well as deaths in the state since 2011. The NVDCP and health system of the state are capable of the control of the disease. As per the data of the NVBDCP,⁵ malaria cases of the state decreased from 54 thousand to less than thousand cases in the last 10 years (2011 to 2021). Similarly, deaths reduced from 45 to only nil in whole Rajasthan in the same period. Higher number of cases were reported

in August, September, and October but started declining from November onwards in winters.⁶ However, Rajasthan is having a unique place in world literature in describing clinical features of severe vivax malaria. According to research done by Kochar et al,^{7,8} it is well established that benign tertian malaria is not always benign. This has also been accepted and included in all the recent monographs of World Health organization.

The cases of Chikungunya are increasing in last 15 years in India including Rajasthan. Initially, it was diagnosed and reported from couple of districts in the year 2006 but thereafter there has been an exponential increase in almost all districts.⁶ Chikungunya cases peaked in the month of November. Probable cases reported were less than confirmed cases. This indicates that treating doctors are either reluctant to diagnose on the basis of clinical symptoms or wrongly label them as PUO.⁶ There was no death reported due to chikungunya in the last 10 years.

H1N1 virus was first reported in Rajasthan in Jaipur in July 2009 and the pandemic reached its peak in the same year after six months.⁹ Thereafter, the cases of the *H1N1* decreased. However, less number of cases have been reported since 2009. In 2012, the cases were increased up to 10 times.⁶ This increase continued till 2013 and in 2014 again low-level activity of *H1N1* was reported. This indicates that *H1N1* activity surge occurs every third year with high magnitude of cases in the months of low temperature and conducive humidity.⁶ In 2015 the instances of *H1N1* substantially increased to five year highs with over 35687 cases reported and 2232 deaths in India.

Sawai Man Singh (SMS) Medical College in Jaipur and National Institute of Implementation Research for Non-Communicable Diseases, Jodhpur initiated routine surveillance for *ZIKV* using real-time RT-PCR in collaboration with the ICMR-NIV Pune. Routine surveillance led to the detection and confirmation of the first *ZIKV* positive case from North India in 2018 from a

resident of Shastri Nagar, Jaipur.¹⁰ The disease profile of the ZIKV was asymptomatic to mild. No major anomaly was observed in infants born to ZIKV positive mothers; however, long term follow up of these children is required.¹¹ There is need to scale up surveillance in the virology lab network of India for early detection and control of outbreaks.

Crimean-Congo hemorrhagic fever (CCHF) is a tick-borne viral disease with average mortality rate of 30-50 percent. In India, the presence of CCHF was first time confirmed in Gujarat State during a nosocomial outbreak in 2011. Since then, numerous outbreaks and sporadic cases of this disease have been reported from different districts of Gujarat State. Studies conducted at the National Institute of Virology (NIV), Pune, reported the presence of anti-CCHF IgG antibodies in domestic animals from the Sirohi district.¹² In 2020 four patients tested positive for CCHF.¹³ The treating physicians encountered uncommon initial presentations involving motor weakness and supraventricular tachycardia. Elevated serum lactate dehydrogenase and creatinine kinase were useful in clinical diagnosis. Only one patient survived despite ribavirin therapy. There was zero nosocomial transmission. A partial segment of nucleocapsid of amplified CCHF virus was 99.62% identical to the Afghanistan and Oman strains. The distribution of CCHF appears to be expanding, with CCHF emerging as endemic in Rajasthan.

Scrub typhus is a rickettsial infection caused by *Orientia tsutsugamushi* transmitted through the bite of Chiggers (larval stage of trombiculid mite). Scrub typhus is an acute febrile illness that generally causes non-specific symptoms and signs. The clinical manifestations of this disease range from sub-clinical disease to organ failure and death. Scrub typhus, though endemic in India; yet is under-reported. During the months of September-November of 2012 and 2013, cases of fever from specific rural areas of Alwar, Dausa, Bharatpur, and Karauli chiefly presented with thrombocytopenia, hypoxemia with B/L chest infiltrates along with impaired liver and renal functions.¹⁴ This case series highlights that scrub typhus is emerging as a life-threatening disease in southeast Rajasthan. Neurological manifestations are very common in scrub typhus. Knowledge of these manifestations will enable clinicians to consider scrub typhus as one of the differential diagnoses of acute febrile illness with neurological involvement. The neurological complications in scrub typhus have a good prognosis if diagnosed and treated early.¹⁵

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