

CHIKUNGUNYA OUTBREAK IN PAKISTAN; OPTIMAL CONTROL, AND MANAGEMENT PREVENTION

Ahmad Riaz¹ and Tariq Javed^{2,3,*}

¹University College of Pharmacy, University of the Punjab Lahore, Pakistan

²Department of Pharmaceutical Sciences, Government College University Lahore

³Lahore Pharmacy College, Lahore Medical and Dental College, UHS Lahore

Corresponding Author Email: tjavedpk@gmail.com

To the Editor

In recent decades, climatic changes have led to extreme weather events and primarily influenced human health by outbreaks of epidemics and infectious disease. Asian countries including Pakistan is fundamentally effected by these substantial climate changes earthquake in 2005 and mega floods in 2010, affected over 20 million people following acute diarrhea, skin diseases and suspected malaria being the most common (Patz *et al.*, 1996). These extreme climatic changes are precursors that triggers natural disasters and infectious disease recent outbreaks including malaria, dengue and chikungunya.

Chikungunya a viral infection is caused by “CHIKvirus” is transmitted through the bite of infected female *Aedes aegypti* and in some cases *Aedes albopictus* mosquitoes. These mosquito bite during early morning and late afternoon, symptoms usually appear after 3-12 days (Guerrant *et al.*, 2011). Most prominent symptoms include fever with severe muscle and joint pain accompanied by fatigue nausea, vomiting, and rash in some cases. Moreover, chronic joint pain may last for several months other, gastrointestinal, neurological, cardiac, pulmonary, renal and ocular complications may persists (Bhargava *et al.*, 2018). Chikungunya virus was first found in Pakistan in 1983 and in 2011 dengue outbreak at Lahore some patients were suspected with chikungunya. Recently, National Institute of health Pakistan confirmed the total number of cases of chikungunya virus is 82 from December, 2016, to February, 2017 and has issued warning for 2018. This data includes number of suspected samples referred by hospitals in Karachi (Aamir *et al.*, 2017). Diagnosis was performed by Trioplex real-time PCR assay which concurrently tests for dengue and Zika viruses. Previously, dengue arboreal viral infection spread by vector mosquitoes *Aedes agypti* in 2012 dengue epidemic has 16580 confirmed

cases and 257 deaths in Lahore and nearly 5000 cases and 60 deaths reported from the rest of the country (WHO 2012). Recent outbreak of chikungunya an arboviral infection was reported in Karachi, WHO is in close coordination with the Ministry of Health Pakistan. With an increase in industrialization, cross borders trade there are several evidences of transmission of infectious and arboreal diseases among neighboring countries and even across continent. Currently, some cutler phylogenetic studies revealed similarity, CHIK strains Pakistan 03 and India 119069 strain circulating in India. Previously another phylogenetic study on dengue virus showed DENV serotype 3 has significant similarity in Pakistan and Indian isolates (Jamil *et al.*, 2007). Chikungunya is rarely fatal, but there is no vaccine or antiviral treatment available to limit the disease, only clinical manifestations are provided to control the symptoms. Viral transmission and disease burden can be controlled by vector management. To avoid anthropogenic transmission there should be contamination screening and monitoring check points, along with disinfectant spray at car wash and tyre management points this may significantly vital at airports, train stations, bus stops and at boarder gates. In Pakistan monsoon season lasts from July to October during this season heavy rainfall and suitable temperature for mosquito breeds (Singh and Taylor-Robinson, 2017). The rain water stagnation and provide intense breeding grounds for mosquitoes as *Aedes aegypti* identified in ditches during recent challenging, dengue outbreak in Punjab. Prior to upcoming monsoon season a door-to-door community level campaign, Media awareness campaign should launched concerning preventative measures at high-risk areas. At local government and personal level, timely preventive measurement can destruct mosquito breeding sites by waste management, kerosene oil spray, fumigations, applying mosquito repellents and nets, can limit the impact of epidemic. Additionally, primary healthcare providers and hospital at district and town level should be instructed for Chikungunya management. This letter is an effort approach authorities, healthcare providers and professionals for public health management to combat and contain disease surveillance and threat of Chikungunya in Pakistan.

REFERENCES

- Aamir, U. B., Badar, N., Salman, M., Ahmed, M. & Alam, M. M. 2017. Outbreaks of chikungunya in Pakistan. *The Lancet Infectious Diseases*, **17**: 483.
- Bhargava, A., Ralph, R., Chatterjee, B. & Bottieau, E. 2018. Assessment and initial management of acute undifferentiated fever in tropical and subtropical regions. *BMJ*, **363**.

- Guerrant, R. L., Walker, D. H. & Weller, P. F. 2011. *Tropical Infectious Diseases*. Elsevier Health Sciences,
- Jamil, B., Hasan, R., Zafar, A., Bewley, K., Chamberlain, J., Mioulet, V., Rowlands, M. & Hewson, R. 2007. Dengue virus serotype 3, Karachi, Pakistan. *Emerging Infectious Diseases*, **13**: 182.
- Patz, J. A., Epstein, P. R., Burke, T. A. and Balbus, J. M. 1996. Global climate change and emerging infectious diseases. *Jama*, **275**: 217-223.
- Singh, A. and Taylor-Robinson, A. W. 2017. Vector control interventions to prevent dengue: current situation and strategies for future improvements to management of *Aedes* in India. *Journal of Emerging and Infectious Diseases*, **2**: 123.