SHORT COMMUNICATION

POTENTIAL CHIKUNGUNYA EPIDEMICS IN PAKISTAN: ACT BEFORE IT'S TOO LATE

Khalid Rehman
Medical University of Vienna-Austria

First Chikungunya outbreak occurred in Karachi, Pakistan in 2016. Chikungunya is transmitted by the *Aedes* mosquito which is also transmits Dengue fever. The first Dengue fever outbreak of Pakistan also occurred in Karachi in 1994. In the past 23 years the disease has spread to all parts of the country. This is comprehensible as there is a lot of travelling between Karachi and other parts of the country which increases the chances of spread of the virus. Based on the precedent of Dengue fever in Pakistan, if appropriate preventive measures are not taken to control Chikungunya, it will only be a matter of time before it hits other parts of the country. At the same time International Health Regulations has to be practiced with all its zest to avoid introduction of diseases like Zika virus and yellow fever, which are also transmitted by *Aedes*.

Keywords: Chikungunya; Dengue fever; IVM; *Aedes* mosquito

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INTRODUCTION

Chikungunya a viral disease transmitted by female *Aedes* mosquito. The first outbreak of Chikungunya occurred in 2016 in Karachi Pakistan and the cases continued in 2017.[1–4] Dengue fever another viral disease transmitted by *Aedes* mosquito is becoming the world's leading emerging disease. In Pakistan the first outbreak of Dengue infection occurred in 1994 in Karachi the country's largest metropolitan city.[5] Since then, the disease has spread to all parts of the country with outbreaks in Lahore (Punjab province) in 2011 & 2016, Swat 2013 and Khyber Pakhtunkhwa (KPK province) 2017. As of September 2017, the KPK outbreak was still going on with 1279 confirmed cases and at least 30 deaths.[6,7] This geographical spread is understandable because Karachi is an economic hub of the country and people from all over the country are continuously travelling to and from Karachi all year long; as well as the favourable environment for the vector throughout the country. Besides, lack of any public health mitigating measures did not help either.

The recent epidemic of Chikungunya in Karachi, is not only a concern for the health authorities of Karachi city but also for health authorities of other parts of the county. This is so because the vector for Dengue and Chikungunya is *Aedes* mosquito which is present in Pakistan.[8] Besides, *Aedes* also transmits Zika virus disease and Yellow fever.

The movement of people (infected) from Karachi to rest of the country will take the virus to the Chikungunya non-endemic areas, thus completing the actors needed for the transmission cycle. The concern is that Chikungunya will follow the previous trends of Dengue fever and will spread to other parts of the country. According to WHO, the mainstay of preventive measures for Dengue and Chikungunya control is Integrated Vector Management (IVM) along with health promotion.[9–11] IVM basically is a rational decision-making process for the optimal use of resources for vector control. In Pakistani context this becomes very important as our resources are limited. By using IVM we can target not only Chikungunya but also Dengue, hence the impact will be two-fold. If the health authorities and other stake holders do not focus on IVM it will only be a matter of time before Chikungunya hits other parts of the country. This will not only stretch the already overburdened health system but will also have negative effects on the economy.

As we know *Aedes* mosquito also transmits Yellow fever and Zika virus. There is a considerable movement of Pakistanis to and from Yellow fever and Zika virus endemic countries.[12] The health authorities should also ensure proper implementation of International Health Regulations (IHR) at all borders and ports of entry to avoid any risks of local Zika virus and Yellow fever transmission.

Stringent implementation of promotive, preventive, IVM and IHR will not only prevent from future Dengue outbreaks but also from potential Chikungunya epidemics. At the same time, it will minimize any risks of local Zika virus and Yellow fever transmission.

REFERENCES

1. Rauf M, Fatima-Tuz-Zahra, Manzoor S, Mehmood A, Bhatti S. Outbreak of chikungunya in Pakistan. Lancet Infect Dis 2017;17(3):258.
2. Liu SQ, Li X, Zhang YN, Gao AL, Deng CL, Li JH, *et al*. Detection, isolation, and characterization of chikungunya viruses associated with the Pakistan outbreak of 2016-2017. Virol Sin 2017;32(6):511–9.

3. Mallhi TH, Khan YH, Khan AH, Tanveer N, Qadir MI. First chikungunya outbreak in Pakistan: a trail of viral attacks. New Microbes New Infect 2017;19:13–4.
4. Mallhi TH, Khan YH, Khan AH, Tanveer N, Khan OH, Aftab RA. Commentary: Outbreak of Chikungunya in Pakistan. Front Public Health 2017;5:261.
5. Chan YC, Salahuddin NI, Khan J, Tan HC, Seah CL, Li J, *et al*. Dengue haemorrhagic fever outbreak in Karachi, Pakistan, 1994. Trans R Soc Trop Med Hyg 1995;89(6):619–20.
6. WHO. Weekly Epidemiological Monitor 2017;10(36). [Internet]. [cited 2017 Sep 27]. Available from: http://applications.emro.who.int/docs/epi/2017/Epi_Monitor_2017_10_36.pdf?ua=1&ua=1
7. Geo TV. Two more die of dengue fever in Peshawar [Internet]. [cited 2017 Sep 27]. Available from: https://www.geo.tv/latest/159147-two-more-die-of-dengue-fever-in-peshawar
8. Fatima SH, Atif S, Rasheed SB, Zaidi F, Hussain E. Species Distribution Modelling of Aedes aegypti in two dengue-endemic regions of Pakistan. Trop Med Int Health 2016;21(3):427–36.
9. WHO. Chikungunya, Fact sheet. Updated April 2017. [Internet]. [cited 2018 Sep 27]. Available from: http://www.who.int/mediacentre/factsheets/fs327/en/
10. WHO. (Regional office for South-east Asia). Guidelines for Prevention and Control of Chikungunya Fever. [Internet]. [cited 2018 Sep 27]. Available from: http://www.wpro.who.int/mvp/topics/ntd/Chikungunya_WHO_SEARO.pdf
11. WHO. Dengue control strategies. [Internet]. [cited 2018 Sep 27]. Available from: http://www.who.int/denguecontrol/control_strategies/en/.
12. Butt AM, Siddique S, Gardner LM, Sarkar S, Lancelot R, Qamar R. Zika virus in Pakistan: the tip of the iceberg? Lancet Glob Health 2016;4(12):e913–4.

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Address for Correspondence:
Khalid Rehman, Medical University of Vienna-Austria
Email: drkhalidrehman@gmail.com