Measles virus circulation between the State members of the Indian Ocean Commission?


1 Santé publique France, Reunion, Saint Denis, France
2 Ministry of Health, Moroni, Comoros
3 Ministry of Health, Antananarivo, Madagascar
4 Commission de l'Océan Indien, UVS, Port Louis, Mauritius
5 Ministry of Health, Victoria, Seychelles
6 Ministry of Health, Port Louis, Mauritius
7 CHU de La Réunion, Saint-Denis, France
8 Santé publique France, Saint-Denis, France

Background: Despite the availability of safe and effective vaccines, measles resurgence has been observed worldwide in 2018 and 2019. In West Indian Ocean (WIO), almost all islands have reported measles cases during these years. Vaccine coverage was particularly low in Madagascar and Comoros Island, with a single dose provided by the Expanded Program on Immunization.

Results: Measles outbreaks have successively occurred in: Mauritius (W12/2018), Madagascar (W35/2018), Reunion (W1/2019) and Comoros (W21/2019; first cases were reported early 2019). As of W41/2019, Madagascar was the most affected island with 244,557 cases (attack rate around 929/100,000) and a case fatality rate of 0.4%. Attack rate was lower in Mauritius (117/100,000) were 1482 and 4 deaths were reported. In Reunion and Comoros, respectively 96 and 132 cases (of whom 62 were confirmed) were reported; no deaths were reported. Two measles genotypes were circulating in the region: genotype B3 in Madagascar and Comoros; genotype D8 in Mauritius; in Reunion Island both genotypes were observed. Only one case was reported in December 2018 in Seychelles were 2-dose vaccine coverage reached 99% in 2017.

Conclusion: Given starting date of each outbreak and circulating genotypes, it can be assumed that outbreaks were closely related, measles virus circulating especially between Mauritius and Reunion on the one hand, and between Madagascar, Comoros and Reunion on the other hand. WIO islands are considered as an epidemiological block where pathogens easily circulate through human and animal exchanges. This situation underlines the importance of the SEGAs network which should be further strengthened. For example, development of biological cooperation between WIO islands could help comprehensive epidemiological analyses in the course of outbreaks.

Do Aedes aegypti lead to larger-scale and more severe epidemic than Aedes albopictus?

P.-Y. Lee1*, T.-H. Tung2, C.-C. King3
1 National Taiwan University, College of Public Health, Taipei City, Taiwan
2 National Taiwan University, Public Health, Taipei, Taiwan
3 National Taiwan University, College of Public Health, Epidemiology and Preventive Medicine, Taipei, Taiwan

Background: Taiwan belongs to both tropical and subtropical climate zones, which results in distinctions of spatial distribution between vectors and cases of human infection of dengue. The vectors of dengue in Taiwan comprise Aedes albopictus (distributed island-wide) and Aedes aegypti (located in southern Taiwan). The aims of this study were to (1) find out similarities and differences in epidemiologic characteristics between indigenous dengue cases in southern and other regions of Taiwan, and (2) compare case fatality rates and incidence rates of dengue cases in outbreak cities in southern and non-southern Taiwan.

Methods and materials: The data was obtained from Taiwan Centers for Disease Control. Demographic data was from statistics of Ministry of Interior. Epidemiologic characteristics, case fatality rates and incidence rates of 733 indigenous dengue cases from Aedes albopictus prevalent regions (Taipei, New Taipei, Taichung, and Taoyuan Cities) and 74,309 indigenous dengue cases from southern Taiwan (Kaohsiung, Tainan, and Pingtung Cities) during 1998–2019 were analyzed by SAS 9.4 and QGIS 3.8.

Results: Dengue clusters were frequently detected in southern Taiwan, while cases in other regions were more likely to be sporadic. Age distribution for cases in southern Taiwan and other regions peaked at 50–59 years (N = 13,576, 18.27%) and 30–39 years (N = 159, 21.69%), respectively with statistical significance (p < 0.001). The percentage of male dengue patients in southern Taiwan was significantly lower than those in other regions [N = 36685 (N = 49.37%) vs. N = 403 (54.98%)] (p < 0.0025). Case fatality rates (CFRs) of dengue in southern Taiwan in 2002, 2014, 2015, and 2016 were 0.36%, 0.14%, 0.53%, 1.30%, much higher than CFR in Aedes albopictus prevalent area. Incidence rate of indigenous cases per 100 thousand population in southern Taiwan in 2002, 2014, 2015, and 2016 (95.57, 279.03, 778.90, 6.78) were much higher than those in other regions (0.26, 0.43, 2.55, 0.05).

Conclusion: Dengue in Aedes aegypti-affected areas resulted in larger-scale and more severe epidemics involving more numbers of clusters than in areas with only Aedes albopictus. Therefore, more active surveillance and early detection of dengue cases in Aedes aegypti distributed areas is needed.

https://doi.org/10.1016/j.ijid.2020.09.587

https://doi.org/10.1016/j.ijid.2020.09.586