

SECTION A

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Molecular diagnosis for confirmation of infectious diseases in Sri Lanka in 2009

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Confirmation of infectious disease outbreaks in Sri Lanka is an important national requirement. Many clinicians as well as general practitioners find it difficult to confirm diagnosis of some infectious diseases only on clinical grounds. Molecular assays can rapidly confirm diagnosis at the early phase of diseases when aetiological agents are present and before antibody titers are at detectable levels. PCR-based assays are more sensitive and more specific than all conventional methods. Overall objective of this study was early, rapid and definitive laboratory confirmation of the aetiology of chikungunya, dengue, Japanese Encephalitis (JE), leishmaniasis, leptospirosis, malaria and West Nile Virus (WNV) through molecular assays. A rapid mobile investigation team equipped with the case definition, questionnaires, sample collection methods and diagnostic methods for each disease was established. This group visited outbreak areas and collected clinical and laboratory information and clinical samples from suspected patients at the early stage of symptoms: 1-5 days. Clinical samples were laboratory tested by disease specific molecular assays (PCR/RT-PCR). Clinical parameters of each disease were analyzed. Only chikungunya, dengue and leptospirosis outbreaks out of the above mentioned diseases were reported during the preceding six months in 2009. The team collected blood samples from clinically suspected cases of chikungunya (n=430), dengue (n=116) and leptospirosis (n=23) from different parts of the island. Molecular assays confirmed infections only in 81% (350/430) for chikungunya, 7% (8/116) for dengue and 9% (2/23) for leptospirosis in selected suspected patients. Reports of the confirmation of the disease outbreak by molecular assay were sent to the relevant health authority within two days to highlight the magnitude of the infection. These results showed importance of aetiological confirmation of infectious diseases by molecular assays. In conclusion, molecular diagnosis using a single clinical sample is important for rapid, definitive and early confirmation of aetiology of a particular infectious disease outbreak when serological methods are of little value at the early stage of infection. This is important for cost effective and efficient control of the outbreaks through proper clinical management.

Keywords: infectious diseases, patients, outbreaks, clinical, molecular diagnosis

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