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Abstract

Surveillance of Human Parainfluenza viruses in Kenya during the 2007-2011 Period

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Background: Human parainfluenza viruses (HPIVs) belong to the paramyxoviridae family and are classified into four types. These viruses account for a large percentage of pediatric respiratory disease, including syndromes such as upper respiratory tract infections (URTIs), laryngotracheobronchitis (croup), bronchiolitis, and pneumonia. HPIV is the major cause of croup in which type 1 is most frequent cause, followed by type 3 and type 2 respectively. In January 2007, through an existing influenza surveillance network, the Kenyan National Influenza center started screening for parainfluenza and other non-influenza respiratory viruses within the designated Influenza surveillance network made up of eight sentinel sites spread throughout the country.

Objective: The objective of this study was to monitor and document circulation of Human parainfluenza viruses in Kenya in the period 2007-2011.

Methodology: Specimens were collected from the nasopharynx using a flocked swab from consenting patients meeting the WHO influenza-like-illness (ILI) case definition. Specimens were transported to the NIC while observing the cold chain and inoculated into LLCMK2 cell line. After incubation and observation for cytopathic effect, all samples were screened by direct immunofluorescence assay (IFA) using the Respiratory Panel I Viral Screening and Identification kit (Chemicon International, Inc).

Results: 14,990 nasopharyngeal swab samples were collected between January 2007-October 2011. HPIV were detected in 801 (5.3%) cases. 361 (45%) of the detections were HPIV-3 followed by HPIV-1 in 296 (37%) and 144 (18%) for HPIV-2 respectively. This confirms what has been observed elsewhere that HPIV1 and HPIV3 are the most frequently detected types. Analyses of co-infections involving HPIVs showed that HPIV1/HPIV2 (16cases) were the most frequent followed by HPIV1/HPIV3 (15) cases and HPIV2/HPIV3 (15 cases). There were 30 cases of triple infections of HPIV1/HPIV2/HPIV3. Generally, parainfluenza viruses circulated throughout the period under study. Parainfluenza virus infections were observed throughout the year with no distinct seasonal patterns.

Conclusion: This study shows that parainfluenza viruses contributed to a significant level to the respiratory disease burden in Kenya in 2007-2011. Furthermore, our study has shown that parainfluenza viruses circulated in the human population in Kenya throughout the study period and did not show any distinct seasonality.

Key words: Human Parainfluenza viruses , 2007-2011, Kenya

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