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Clinical efficacy of long-acting neuraminidase inhibitor, laninamivir octanoate hydrate, in postmarketing surveillance

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Background: Laninamivir octanoate hydrate (laninamivir) is a long-acting neuraminidase inhibitor, which completes treatment with only a single dose. It was launched in October 2010 in Japan as an anti-influenza agent. Since laninamivir was approved in Japan for the first time in the world, it is extremely important to elucidate the actual status of its efficacy in clinical experiences. We investigated the efficacy of laninamivir during a postmarketing surveillance conducted in the 2010/2011 influenza season.

Methods: A total of 3,732 patients diagnosed with influenza infections by use of a rapid influenza diagnostic kit at 787 hospitals around Japan were enrolled between November 2010 and April 2011 in this surveillance. Generally, patients under 10 years old inhaled a single dose of 20 mg as laninamivir, while patients at 10 or older inhaled a single dose of 40 mg. A diary-based investigation was performed to assess the efficacy on the basis of 'time (days) to fever resolution and 'time(days) to relief of influenza symptoms. The status of inhalation (whether patient could successfully inhale laninamivir as instructed by doctors/pharmacists) was also investigated.

Results: There were 3,524 patients eligible for efficacy evaluation. The median time to fever resolution in patients with type A or B influenza infection was 3 days, including the day of inhalation. The median time to symptom relief was 4 days. Based on attending physician's judgment on efficacy, the efficacy rate was 97.6% in type A influenza, 93.3% in type B influenza, and 100% in mixed type influenza. "Treatment failure" was most closely correlated with the status of inhalation. "Unsatisfactory inhalation" or "inhalation failure" was reported in about 5% among pediatric patients under 5 years.

Conclusion: Laninamivir was confirmed to be an effective treatment in more than 90% of patients with type A or type B influenza infections, even though this drug is an anti-influenza agent that completes treatment with only a single inhalation. This drug was considered to be useful for the treatment of influenza infections with respect to its convenience for use and the improvement of compliance.

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Japanese encephalitis in eastern Nepal: access to the laboratory diagnosis

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Background: Japanese encephalitis (JE) is a significant cause of morbidity and mortality in Nepal. Confirmation of JE among the cases of Acute Encephalitis Syndrome (AES) is essential for estimation of disease burden and national immunization strategy. New initiative of JE surveillance national guidelines has utilized the WHO/Immunization preventable disease (IPD) network to increase the access of AES cases in peripheral hospitals to JE diagnosis. Department of Microbiology, BP Koirala Institute of Health Sciences (BPKIHS), remains the only centre outside the capital city to provide JE laboratory diagnosis.Objective of the present study was to assess the access of peripheral hospitals to the JE diagnostic facility and to determine the frequency of JE among the AES cases.

Methods: CSF and/or blood samples obtained from cases of AES admitted in BPKIHS and the district hospitals and submitted to JE laboratory from the year 2000 to 2011 were included. From the peripheral hospitals samples were transported to laboratory by a surveillance team of WHO/IPD. Specimens having anti-JE IgM ($\geq$40 units); detected by IgM capture ELISA were confirmed as positive for JE virus infection. Diagnostic outcome report was provided to the WHO/IPD network.

Results: A total of 3352 samples were received. Out of 3352 samples, 760 (22.9%) exhibited the presence of anti-JE antibody. Positivity was lower in 2008 (12.1%) as compared to highest rate in 2001 (61.1%). Rate of percent positivity observed was as follows; 2000(18.2), 2002(25.2), 2003(31.5), 2004(26.5), 2005(25.4), 2006(34.8), 2007(16.0) and 2009(17.1), 2010(14.6), 2011(14.1).More than two third of the specimens were from children (<15yrs). Overall male predominance was observed. Samples were obtained from >20 districts of Nepal.

Conclusion: JE continues to prevail in eastern Nepal. Due to utilization of WHO/IPD network for the surveillance, diagnostic facility has become accessible for the patients admitted in district hospitals. As definitive diagnosis of JE was established only in 22.9% among AES cases, exploring the etiological agents in 77% remains a challenge. Recognized as the only referral JE diagnostic laboratory outside the capital city, this centre,however, needs the upgrading of the facilities and adaptation of newer techniques for further detection of the unidentified etiological agents of AES.

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