Influenza Forum

IF-01 Rapid and Sensitive Detection of Various Influenza Virus Subtypes Using SAT
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SAT (Simultaneous Amplification and Testing) is an isothermal real-time detection technique allowing rapid amplification and detection of specific regions of nucleic acid from a diverse range of sources. It is especially suitable for RNA. A series of SAT products have been developed allowing the detection of RNAs from influenza virus A, influenza virus B, seasonal influenza (H1N2 and H1-H1N1), influenza virus A subtype H1N1, avian flu H5N1. These SAT-based products are specific for each type or subtype of the viruses and do not cross-react with other influenza subtypes. The assay is 10- to 100-fold more sensitive than most of the commercially available real-time PCR system. Combined with an easy magnetic-based sample processing method, the SAT assay can be used in high throughput influenza screening programmers.

IF-02 Successful Control of Influenza Using Stockpile of Tamiflu® during 2003/2004 SARS Period
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The common clinical manifestations shared by severe respiratory virus infection (SARS) and influenza constitute a big challenge for the successful control of SARS during the winter flu period 2003/2004 in Taiwan. In the belief that the far majority of flu-like illness (ILI) will actually represent influenza in the flu season and to avoid confusion and panic of SARS suspect in the post-SARS period, the Center for Disease Control of Taiwan implemented a national policy of ILI control measure which includes public health measures and the stockpile of antivirals-Tamiflu® for the control of flu-like illness (ILI) in the 2003/2004 winter period, particularly for the control of institutional outbreak of ILI illness. The control policy includes the real-time reporting of ILI cluster in the institutions such as nursing home, school, military, and jail. Upon receiving the reporting, a task force team was immediately dispatched to investigate the outbreak. After sampling the throat swab specimens, anti-virals were given to the patients and followed up in the coming weeks. A total of 24 institutional ILI outbreaks were reported in 2003/2004 winter period. Among which, 23.4% of the cases (609 samples taken, 143 positive) were laboratory-proved to be caused by influenza by the laboratory by a combination of ELISA kit for influenza, PCR for influenza and SARS-CoV, and viral culture. None of them were caused by SARS-CoV. All the ILI outbreaks were successfully controlled by this measure and no more transmission was reported following the application of anti-virals. In parallel to this control measure, the ILI incidence of ILI cases reported by sentinel physician sur-

IF-03 Clinical Effectiveness of Oseltamivir or Zanamivir for Influenza A/H1N1 Virus with or without H274Y Mutation
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Aim: Recently, an extremely high prevalence of oseltamivir-resistant A/H1N1 virus with mutation H274Y has been reported. However, the clinical effectiveness of oseltamivir or zanamivir for A/H1N1 virus with the H274Y mutation has not been adequately evaluated. We evaluated the clinical effectiveness of oseltamivir or zanamivir for influenza A/H1N1 virus with H274Y mutation.

Methods: The patients consisted of 164 A/H1N1 and 59 A/H3N2 patients in the 2008-2009 season and 68 A/H1N1 patients in the 2007-2008 season. Neuraminidase inhibition assays (IC50) for oseltamivir and sequence analyses were performed using influenza viruses isolated from these patients. Body temperature was evaluated before and on the second, third, and fourth days after starting treatment. The duration of fever (temperature, ≥37.5°C) after the first dose of oseltamivir was measured. Influenza virus was isolated and its subtype was determined.

Results: All of the 49 A/H1N1 virus isolates analyzed in the 2008-2009 season but none from the 2007-2008 season contained the H274Y mutation. The mean IC50 before oseltamivir treatment was significantly higher in the age group of <15 years (50.0%) than >15 years (11.8%) in the 2008-2009 season (p=0.038). Body temperature was significantly higher on the third and fourth days after starting treatment in the 2008-2009 season than in the 2007-2008 season in patients ≤15 years. The duration of fever after the start of oseltamivir therapy was significantly longer in A/H1N1 patients (32.0±18.9 h) than in A/H3N2 patients (33.7±20.1 h, p<0.001) in the 2008-2009 season or the 2007-2008 A/H1N1 patients (32.0±18.9 h, p<0.001). The duration of fever after the first dose of oseltamivir was significantly longer than that with zanamivir in the 2008-2009 A/H1N1 patients (p<0.001).
significantly longer in children ≤ 15 years in the 2008-2009 than in the 2007-2008 season. The percentage of febrile patients at 48 and 72 h after the start of therapy with oseltamivir was significantly higher than that with zanamivir for the 2008-2009 A/H1N1 patients especially in children.

Conclusion: For A/H1N1 infection, there was a slight reduction in the effectiveness of oseltamivir especially in children, however, zanamivir continued unchanged in the 2008-2009 season in comparison with the 2007-2008 season.

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