

3・3 誌上発表論文抄録

Natural Japanese encephalitis virus infection among humans in west and east Japan shows the need to continue a vaccination program

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Japanese encephalitis (JE) is a serious disease in Asia, but it can be prevented by vaccination. To evaluate the necessity for vaccination in areas with reduced numbers of vector mosquitoes, as well as patients, it is critical to understand the frequency of natural virus exposure. Serum samples were collected in 2004–2008 from inhabitants of Kumamoto Prefecture in west Japan, and in 2004–2006 from the Tokyo Metropolitan area of east Japan. Average annual infection rates estimated from the prevalence of antibodies to the nonstructural 1 protein (NS1) of JE virus was 1.8% in Kumamoto and 1.3% in Tokyo. When estimated from percentages of populations with detectable neutralizing antibodies but with no vaccination history, the average annual infection rate was 2.6% in both survey areas.

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Antibodies to bovine serum albumin in human sera: problems and solutions with casein-based ELISA in the detection of natural Japanese encephalitis virus infections

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Japanese encephalitis virus (JEV) -NS1 ELISA system has already been established. This system uses an ELISA diluent containing casein, instead of bovine serum albumin (BSA). During a survey, we noticed that 21 (21%) of 102 children aged 1-5 years, who had no history of Japanese encephalitis vaccination and were without detectable neutralizing antibodies, showed positive results with this ELISA system. Western blotting analysis showed that sera from 19 (91%) of these 21 subjects had antibodies to BSA, but not NS1. These sera reacted with BSA antigen remaining in immunoaffinity-purified NS1 antigen. A solution to this problem was to reduce the BSA level to <1% of the NS1 amount. Another was to use a control well sensitized with BSA at the same amount as contained in the NS1 antigen preparation.

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An adult norovirus-related encephalitis/encephalopathy with mild clinical manifestation

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Norovirus is an emerging pathogen that causes gastroenteritis outbreaks. Here, we reported an adult female case of norovirus-related encephalitis/encephalopathy (NvREE) with abnormal behaviour, pathy, motor aphasia, bradykinesia and gait disturbance. We treated the patient with intravenous ethyl-prednisolone pulse therapy and she recovered quickly. We successfully detected the norovirus genome in stool samples from all seven family members. This is a first case report of an adult NvREE with detection of pathogenic evidence.

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Complete Genome Analysis of a Novel Intertypic Recombinant Human Adenovirus Causing Epidemic Keratoconjunctivitis in Japan

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For the analyses of the 11 Human adenovirus (HAdV) samples could not be determined by phylogenetic analysis using a partial hexon gene sequence., we determined the nucleotide sequences of the entire penton base, hexon, and fiber genes and early 3 (E3) region, which are variable regions among HAdV types. The nucleotide sequences of loops 1 and 2 in the hexons of all 11 samples showed high degrees of identity with those of the HAdV type 15 (HAdV-15) and HAdV-29 prototype strains. However, the fiber gene and E3 region sequences showed high degrees of identity with those of HAdV-9, and the penton base gene sequence showed a high degree of identity with the penton base gene sequences of HAdV-9 and -26. Moreover, the complete genome sequence of the 2307-S strain, which was isolated by viral culture from 1 of the 11 samples, was determined. The 2307-S strain was a recombinant HAdV between HAdV-9, -15, -26, -29, and/or another HAdV type; however, the recombination sites in the genome were not obvious. We propose that this virus is a novel intertypic recombinant, HAdV-15/29/H9, and may be an etiological agent of EKC

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GC/MS及びLC/MS/MSによる水中高魚毒性農薬の迅速分析法

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水中の高魚毒性農薬68成分について，簡易迅速分析法の開発を行った。そのうち48成分をガスクロマトグラフィー/質量分析法（GC/MS）により測定し，GC/MSで測定困難な20成分を液体クロマトグラフィー/タンデム型質量分析法（LC/MS/MS）により測定した。GC/MS測定農薬について，試料として標準品を添加した蒸留水を多孔性ケイソウ土カラムに負荷し，溶出溶媒検討の結果，酢酸エチル150mlを用いた時，すべての農薬成分について，回収率87～101%の良好な値が得られた。この条件によるGC/MS測定及び試料をアセトニトリルで直接希釈したLC/MS/MS測定を組み合わせることにより，蒸留水，ミネラルウォーター及び河川水を試料とした標準品添加回収試験を行った結果，すべての農薬成分について，回収率84～105%の良好な値が得られた。本法は操作時間が約1時間と短く，さらに，分析に必要な試料量がGC/MS測定で20ml，LC/MS/MS測定で5ml，合計25mlと少ないという長所もあり，魚へい死事故の原因究明に大きな役割を果たすものと期待される。