84.004

Outbreak investigations of double measles in a two highly immunized hilly areas of district Kangra, Himachal Pradesh, India, 2007

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Background: Measles is the fifth largest killer disease among children in the world. In September, 2006, a community leader worker informed us about an increase in cases of fever and rash in some hilly villages of district Kangra. We investigated two sequential outbreaks of measles to confirm the diagnosis and to formulate recommendations for prevention and control.

Methods: We defined a case of measles as occurrence of fever with rash in a child aged six months to 17 years during 3rd September to 23rd November, 2006. We line listed cases and collected information on age, sex, residence, date of onset, symptoms, signs, traveling, treatment history and vaccination status. We described the outbreak by date of onset, symptoms, signs, traveling, treatment history and vaccination status. We line listed cases and collected information on age, sex, residence, date of onset, symptoms, signs, traveling, treatment history and vaccination status. We confirmed diagnosis clinically, serologically and through genotyping of the virus.

Results: We identified 69 case patients. Overall attack rates ranged between 4.2% and 6%. All cases were between 6 to 17 years. Age-specific attack rate in 1st outbreak ranged between 1.7% to 13% in 6-15 years while in 2nd outbreak; it is 2.2 to 17.3%, highest in 11-17 years. No deaths or complications were reported. The epidemic curve was suggestive of typical propagated pattern. The 1st outbreak imported virus after an inter school game competition (Relative risk: 2.2 to 17.3%, highest in 11-17 years). The 2nd outbreak was imported from an infected village of 1st outbreak (Relative risk: 5.3; 95% confidence interval: 1.90 — 14.77; P < 0.001). The calculated immunization coverage (93%) coincided nearly with administrative claims. We estimated vaccine coverages and vaccine efficacies in the affected villages. We confirmed diagnosis clinically, serologically and through genotyping of the virus.

Conclusion: Measles outbreaks were confirmed in high immunization coverage areas. We recommended second dose opportunity for measles and vitamin A supplementation to all the cases in Himachal Pradesh.

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84.005

Higher prevalence of norovirus than rotavirus as cause of acute gastroenteritis in hospitalized infants of Concepcion, Chile

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Background: Norovirus (NoV) are the main cause of acute gastroenteritis (AG) worldwide because of their contagiousness, low infectious dose, environmental stability, rapid secondary transmission and genetic variability. In Chile, the role of rotaviruses as causative agent of AG in children is well established but the prevalence and clinical significance of norovirus is unknown, because its clinical similarity with rotavirus and lack of diagnosis methods. We investigated the prevalence of NoV and Rotavirus (RV) in children with AG.

Methods: We collected stools samples from Dec. 07 to Dec. 08 from 145 hospitalized children in the Regional Hospital GGB of Concepcion. As controls, we collected stools from 57 healthy infants from a day care center. A 71% of children with AG were infants (103) and 42 were children 2-14 yr old. For detection and typing of NoV genogroups I and II, we used a RTPCR with 3 specific TaqMan probes. RV presence were determined with a commercial VIKIA™ "Rota-Adeno" kit Biomerieux.

Results: In 103 infants we found 34% of NoV and 17.8% of RV. A 48% of them were hospitalized for AG and 52% were initially hospitalized for other causes. In the first group we found 32.7% NoV and 24.4% RV. The second group presented 35.2% NoV and 13% RV. In children 2-4 yr old we found 9.5% of NoV and 11.8% RV. Children older than 4 yr old were negative for NoV and had 12% of RV. Only 2 healthy infants were positive for NoV (3.5%). Summer prevalence was the highest for RV at 27.3% and the lowest for NoV at 3%. Average prevalence was 48.5% for NoV and 13.4% for RV.

Conclusion: Main cause of AG in hospitalized infants in Concepcion was due to NoV. Prevalence of infection caused by NoV greatly exceeded that of RV, except in Summer. Younger children, less than 2 year old suffered most for NoV infection as compared with RV infection that equally affected all age groups. Norovirus were more likely to facilitate nosocomial infections (35.2%) as compared with Rotavirus (13%).

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84.006

Lessons that human virology can acquire from studies on avian circo- and tumor viruses

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Background: Economically-poultry-significant avian viruses can also provide scientific insights in un-experimentable human topics. Virological studies in poultry reflect natural phenomena, as they replicate in commercial flocks, causing natural infections, natural
Methods: Molecular integration were assessed by the detection of chimeric molecules in vivo.

Results: Avian tumor viruses include one herpes- and four retroviruses. Molecular recombination between DNA and retroviruses was created in vitro, resulting in an recombinant MDV with altered properties (Drs. Kung and Witter, USA). We now questioned multiple-virus-infections in commercial flocks, examining whether interviral molecular recombinations occur also in vivo, and found 25% double-virusinfected commercial flocks and 5% samples with molecular integrations. Spontaneous interviral recombination occurred also between retroviruses in commercial birds, emerging in the avian leukosis-subgroup-J, that caused great economic losses. Avian tumor viruses could provide animal models to human dual infections with herpesviruses and retroviruses. We also reviewed similarities between human Anellovirus and avian Circoviridae, to examine whether knowledge acquired from studies of natural and experimental avian infections with could reflect on human Anelloviruses.

Conclusion: Studies on avian circoviruses, specifically chicken anemia virus (CAV) can add to current understandings on Anellovirus infections, directed towards finding associated diseases. The health burden imposed by Circoviridae and Anellovirus infections may be underestimated because lack of awareness for search beyond the predominant clinical effects of identified pathogens. Their immunomodulatory contribution by co-infecting Circoviridae and, by analogy, human Anelloviruses necessitates consideration.

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84.007
Optimization of IgG-ELISA and molecular analysis of Reston-ebolavirus among swine in Northern Luzon, the Philippines


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Background: In late 2008, Reston-ebolavirus (RES) in swine was first reported in the world from 2 provinces in the Philippines, and those were also affected with Porcine Respiratory and Reproductive Syndrome (PRRS). The aims of this study are 1) to establish the detection of anti RES IgG by ELISA and 2) to analyze the extent of transmission and spread of RES in swine in the affected farm.

Methods: Swine samples collected in Bulacan Province and Pangasinan Province, where the RES infection was reported, were examined in this study. 1) From the lymph node of RES infected swine, RES-Nucleoprotein (RES-NP) and RES-Glycoprotein (RES-GP) gene were amplified and nucleotide sequences were determined. 2) RES-NP and GP were expressed in insect cells by recombinant baculovirus and then purified. IgG-ELISA was compared with different antigens: purified recombinant RES-NP and GP purified recombinant Zaire Ebola (ZAI)-NP, RES-infected cell antigens (authentic-RES, prepared by US-CDC), ZAI-infected cell antigens (authentic-ZAI, prepared by US-CDC). Immunofluorescent (IF) test using Hela cells expressing the recombinant RES-NP, GP and ZAI-NP were also conducted.

Results: 1) Multiple mutations were detected in variable region of GP, compared with the RES from the monkeys in 1989, 1992 and 1996. 2) IgG-ELISA using purified recombinant RES-NP, GP and authentic RES showed the highest sensitivity, followed by ZAI-infected cells and lowest with purified recombinant ZAI-NP. The serum samples being positive in IgGELISA with RES-NP and GP were confirmed as such in IF test. Approximately 20% of the swine serum from Bulacan Province showed positive.

Conclusion: It is still unclear if RES is pathogenic in swine and how PRRS is involved in infection and spread of RES among swine. Further seroepidemiological survey in swine in other farms is still necessary to reveal the actual situation of RES in the Philippines. RES antibody detection system will be very useful in augmenting the RES detection systems currently available in the Philippines.

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84.008
A newly discovered viral enzyme capable of alteration of nucleic acid structure via phosphotriester and phosphodiester bonding complex: An event leading to a new frontier of research and development for viral diseases

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Background: Viruses are interested because many cause serious illness in humans, animals, and damage crop plants. During the last century, progress in the control of infectious disease through using new vaccines and drugs have reduced the threat to human. The advance of new knowledge/ technology relevant to viruses provide a better way to control viral diseases. We report a newly discovered virus associated enzyme capable of altering nucleic acid structure through the formation of phospho-triester/phosphodiester bonding.

Methods: Enzyme was partially purified from plant/animal sources by combining (NH4)2SO4 Fractionation, Gel Filtration, Ion Exchange Chromatography. Virions were gifts from laboratories of the following professors: Roland Rueckert (polivirus and influenza virus); Paul Ahlquist (Brome mosaic virus), Molecular Institute of Virology; Thomas German (Southern Bean mosaic virus), Department of Entomology; Virginia Hindshaw (avian virus),and Mouse retrovirus from the late Prof. Howard Temin, UW; and Univeristy of Laval, Canada, respectively. The phospho-bonding complexes were determined...