

LAIVs were attenuated for mice. These data indicate that the 4M2e insertion did not affect LAIV virus replication characteristics. The expression of M2e epitopes by the recombinant viruses was confirmed by ELISA with M2e-specific antibody 14C2 (ab5416). The results of immunogenicity and cross-protective efficacy of the new LAIV-4M2e viruses will be presented.

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CIRCULATION OF COXSACKIEVIRUS A IN HAND-FOOT-MOUTH DISEASE IN SOUTHERN VIETNAM, 2015–2016

T.T.T. Nguyen, T.H.T. Vu, T.K. Nguyen, M.T.T. Phạm, Q.K. Tran, Q.C. Hoang

Pasteur Institute in Ho Chi Minh, Ho Chi Minh, Vietnam

Hand, food and mouth disease (HFMD), a common contagious disease that usually affects children, is normally mild but can have life-threatening manifestation. It can be caused by enteroviruses, particularly Coxsackieviruses (CA) and human enterovirus 71 (EV71) with highly variable clinical manifestation.

In 2011–2014, EV71 and CA16 were responsible for the HFMD outbreak in South Vietnam. However, CA6 and CA 10 were observed increased dramatically from 2015–2017. In 3 years, 1488 cases were detected positive for enterovirus from 3277 HFMD cases, the results are the more frequently presented serotypes as 908 EV-71 (61%) and 580 other EV none EV71 (39%).

The HFMD cases which were detected as other EV positive, had been sequenced and serotyped with results: CA6 (196.34%), CA10 (75.13%), CA16 (146.25%) and CA2.4, 5.8, 9; CB3.4, 5; ECHO6.9, 11.16, 25.30... (163, 28%).

Furthermore, serotype of CA 6, CA 10 replacement every year.

CA10 increased in 2016 and the presence of CA10 were 68% (69/102) in the group of Enterovirus non EV71. Our study demonstrates variety of enterovirus genotypes as viral pathogens in causing HFMD in Southern Vietnam. CA10 and CA6 were co-circulating together with EV-71 and CV-A16 in recent years.

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EPIDEMIOLOGY OF ADENOVIRAL INFECTION IN ST. PETERSBURG

I.V. Ovsyannikova¹, L.S. Korokoz²

¹*St. Petersburg Pasteur Institute, St. Petersburg, Russia;* ²*Center of Hygiene and Epidemiology in St. Petersburg of Federal Service for Oversight of Consumer Protection, St. Petersburg, Russia*

The modern methods of laboratory diagnostic for different virus significantly expanded etiological spectrum of acute gastroenteritis. Along with wide spread rota- and noroviral gastroenteritis, a large amount of cases with adenoviral etiology is registered. According to the published data, the adenoviral acute intestinal infections constitute from 1 till 15% of all diarrheal diseases and depends on the region.

The purpose of this study was to find the prevalence of adenoviral acute intestinal diseases in St. Petersburg, to estimate the significance of this problem, find the risk groups and other epidemiological features.

We used the official data from St. Petersburg center for registration of infectious and parasitic diseases in 2016–2017. Epidemiological investigation of 344 cases of adenoviral infection was performed by standard contact investigation. Molecular diagnostics was performed using PCR based tests.

The incidence level of adenoviral infection in St. Petersburg in 2016 was 4.1 per 100 000; in 2017 — 2.4 per 100 000. Adenoviral infection was registered in 90.0% in hospital patients, because of using high technology laboratory methods. Findings among outpatients were rare and were only in depth examination. From 2016–2017 adenoviral infection was found in 34 (9.8%) outpatients only. Adenoviral gastroenteritis was registered in all districts of our city, in 2016 more frequently in Viborgsky, Central and Primorsky districts of St. Petersburg; in 2017 more frequently in Kalininsky, Primorsky and Krasnogvardeisky districts. All the patients with this infection were recovered.

Monthly trend showed autumn-winter seasonality, in summer the incidence decreased. Analysis of the age structure of adenoviral infection showed that 60% cases were in the age group from 0 to 14 years. In children from 0 to 2 years old — 30% cases were registered, from 3 to 6 — 24.4%. The incidence level in the age group from 0 to 2 was 24.1 per 100 000 in 2017 (6 times increase from common level of this infection); in children from 3 to 6–18 per 100 000 (4 times increase from common level of this infection). We found the same tendency in 2016. Adenoviral infection is also registered among people of active age (in the age group 20–29 we found 12.9% cases; 30–39 — 7.1); in the elderly patients we found decreasing trend. It was only 3.2% cases of adenoviral infection in patients after 60. Diagnostic investigations on the etiology of acute intestinal infections were organized on different agents simultaneously. So 38% cases in this investigation were with associations of adenovirus with over etiologic viral and bacterial agents. Viral-viral associations were in 54% of all mixed cases. More frequently associative epidemic foci were forming with adenovirus and rotavirus (32%); adenovirus and norovirus (16%); with over viruses — 6% cases. The part of viral-bacterial associations in the adenoviral foci was 43% (33 cases). Among bacterial agents adenovirus more frequently associated with *Escherichia*, *Campylobacter*, opportunistic flora, rarely with *Klebsiella* and *Yersinia* associations with 3 etiologic agents was found in 4% cases. Two patients had adeno-, roto- and norovirus at the same time. We also found epidemic foci with mixed adenovirus, rotavirus and campylobacter infections. All mixed cases were found in hospital patients. Mixed infections had more serious clinic without specific clinical manifestation, and additional laboratory methods were required for identification.

This investigation showed significance of the problem of adenoviral infection in St. Petersburg; children from 0 to 2 years old were found to be a risk group for this disease. Autumn-winter seasonality was found. Epidemiological specific feature of adenoviral infection is forming mixed foci with other (viral and/or bacterial) etiologic agents in 38% cases.

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CHALLENGES FOR POLIO ERADICATION. RISK OF RE-EMERGENCY OF INFECTION IN POLIO FREE COUNTRIES

N.I. Romanenkova, M.A. Bichurina, N.R. Rozaeva, O.I. Kanaeva

St. Petersburg Pasteur Institute, St. Petersburg, Russia

The risk of importation of wild polioviruses (WPV) into polio-free countries remains till poliomyelitis is eradicated. Other risks of Polio Eradication Initiative are: circulating vaccine-derived polioviruses (VDPV) with nucleotide substitutions and recombinant profile; appearance of vaccine associated paralytic poliomyelitis (VAPP) and escape of polioviruses from polio vaccines.