



Human Enteroviruses Isolated from Stool Samples of Patients Hospitalised at Children's Hospital*

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Background: Lithuania, along with the World Health Organization (WHO) European region, was certified polio free by the Regional Commission for the Certification of Poliomyelitis Eradication in 2002. The last poliomyelitis case due to indigenous wild poliovirus occurred in Lithuania in 1972.

The main strategy recommended by the WHO for PV surveillance is the investigation of acute flaccid paralysis (AFP) cases in children, which is a sensitive marker for poliomyelitis.

Poliovirus transmission is prevented by achieving and maintaining high immunization coverage. Surveillance of AFP cases among children below 15 years of age and appropriate level of proficiency of laboratory of virology are important components of the programme of polio eradication. Following the WHO recommendations, in Lithuania National public health surveillance laboratory processes the stool samples from hospitalized individuals with AFP and clinically suspected enterovirus infection. Polio suspected isolates are further analysed at the WHO Enterovirus RRL in Helsinki. Such a system ensures a high level of clinical vigilance and laboratory proficiency.

Aim of this study was to analyse the results of virological testing of samples collected at Children's hospital Paediatric Centre from the AFP and clinically suspected enterovirus infection.

Methods: Retrospectively case histories were analysed if the patient met the following criteria: 1. Hospitalised at Children's hospital Paediatric Centre between January 2014 – October 2017; 2. Stool samples were collected for suspected enterovirus infection (acute cutaneous eruptions, mucosal membrane lesions, mild respiratory illness, CNS involvement) or acute flaccid paralysis (AFP); 3. Stool samples were processed at National Public Health Surveillance laboratory; 4. The data about patients age, clinical features and indications for stool sampling were collected.

Department	№ Of Samples	Diagnosis
<i>The Children's Infectious Disease Department</i>	136	Exanthems and enanthems
	5	Encephalitis
	3	Meningitis
<i>The Paediatrics Department</i>	3	Myopericarditis
	1	Meningitis
<i>The Children's Neurology Department</i>	5	Flaccid paraplegia
	2	Meningitis
	3	Transverse myelitis, Guillain-Barré syndrome
<i>The Children's Pulmonology and Allergology Department</i>	33	Exanthems and enanthems
	4	Meningitis
In total:	195	

TABLE 1 № Of stool Samples collected from different departments of Paediatric Centre

Results: In total, 195 stool samples from 117 patients, hospitalised at Paediatric Centre were analysed (table 1). In 5 patients with AFP no polio or other enteroviruses were isolated during 2.5 years of surveillance. Enteroviruses were isolated in 12 out of 117 patients with clinically suspected enterovirus infection. Mean age of EV positive children with symptoms was 2 years (range: 166 days-7 years; median age: 18 months). No wild polioviruses were isolated in these patients. In one 10-month-old child, Sabin-like poliovirus type 3 was detected in two stool samples. He was hospitalised because of high-grade fever and maculopapular rash on the trunk, extremities. The boy was fully vaccinated for his age according to NIP (which includes 3 doses of Inactivated Polio Vaccine (IPV) vaccine). He attended a nursery. There was no travel abroad history or known contact with Oral Polio Vaccine (OPV) vaccinated persons from foreign countries. No other enteroviruses were isolated in this patient.

Presence of non-polio Enteroviruses was recorded in 11.6% (22/190) of stool samples. Nonpolio human enteroviruses isolated from stool samples belonged to species: coxsackievirus A10 (8 samples), coxsackievirus A16 (2 samples), coxsackievirus A 4 (1 sample), coxsackievirus B1-6 (4 samples), echovirus 6 (3 samples) and enterovirus non typable (2 samples). 90% of positive stool samples were isolated from patients who reported nonspecific acute febrile illnesses with petechial or purpuric rash. One non-polio EV-positive child was reported with sepsis like disease.

Conclusions: 1. No wild-type polioviruses were isolated during the study period. 2. Our experience shows that Sabin-like polio-viruses might circulate even in a community where OPV is not in use and without evident contact with OPV vaccinated person. 3. It is important to guarantee high-quality surveillance to maintain polio-free status until global eradication is achieved. 4. The most commonly isolated enterovirus was coxsackievirus A10. 5. In most cases the diagnosis of EV infection is based only on clinical findings as laboratory confirmation is very scarce.



Pictures of patients with laboratory confirmed EV infection

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