Acute flaccid paralysis

Principal investigator

Robert Pless, MD, MSc, Centre for Immunization and Respiratory Infectious Diseases, Public Health Agency of Canada, tel.: 613-668-1925, robert.pless@phac-aspc.gc.ca

Co-investigator

Jenny Rotondo, MHSc, Public Health Agency of Canada

PROTOCOLS

Background

Acute flaccid paralysis (AFP) is a potential outcome of poliovirus infection that involves the acute onset of paralysis in one or more limbs. The differential diagnosis for AFP includes a number of other conditions such as Guillain-Barré syndrome, transverse myelitis and other infections (e.g., campylobacter, poliomyelitis, etc.).

The World Health Organization (WHO) has recommended that nations conduct surveillance of AFP in order to monitor for polio. The last case of indigenous wild paralytic poliomyelitis in Canada occurred in 1977. Paralytic cases in 1978/1979 (11 cases) and 1988 (one case) occurred as a result of wild virus importation. Since then, other instances of wild virus importation in Canada have resulted in very limited, if any, secondary transmission and no associated paralytic illness. Continued surveillance for poliomyelitis remains essential due to the risk of wild virus importation from polio-endemic regions, a risk that remains until global polio eradication is achieved. Canada was certified polio-free in 1994 by the WHO and continues to conduct surveillance of AFP to ensure that the country's polio-free status remains intact.

Surveillance of AFP in Canada is a collaborative effort between the Canadian Paediatric Society (CPS) and the Public Health Agency of Canada. It was initiated in 1991 when AFP was chosen as one of the surveillance targets for the pilot of the Canadian Immunization Program ACTive (IMPACT), a network that is currently composed of 12 paediatric centres across Canada, representing 90% of the Canadian paediatric tertiary care beds. In 1996, the program was enhanced when AFP was also included as a surveillance target in the newly formed Canadian Paediatric Surveillance Program (CPSP), a program collecting data from a network of paediatricians across the country.

Methods

Each month, participating physicians receive an initial summary reporting form listing the conditions under surveillance, and are asked to indicate the number of new cases seen in that month, including nil reports. If an AFP case is reported, a detailed questionnaire is sent to the physician to obtain case-specific clinical, laboratory, and epidemiological information. Cases of AFP are also identified by designated nurse monitors at IMPACT centres, who complete the AFP questionnaire upon identifying a case. Each reported case is reviewed at the Public Health Agency of Canada to rule out poliovirus infection.

To assist with the investigation of AFP cases and suspected cases of paralytic poliomyelitis, a protocol has been published.[1] It emphasizes that in all cases of AFP,

a stool specimen should be collected within two weeks of onset of paralysis and examined for poliovirus.

Objectives

The purpose of the national AFP surveillance system is to monitor Canada's polio-free status by ensuring a sensitive, active surveillance system along with prompt, appropriate investigation of all AFP cases in Canada in children less than 15 years old, to rule out the possibility of the cause being poliovirus infection.

The objectives of the Canadian AFP surveillance system are based on three performance indicators used by the World Health Organization to determine whether AFP surveillance is of 'certification' standard. They are as follows:

- Detect at least one case of non-polio AFP per year for every 100,000 children less than 15 years of age.
- Collect adequate stool sample results from at least 80% of cases within 14 days of onset of paralysis.
- Collect data on follow-up examinations at least 60 days after onset of paralysis to verify the presence of residual paralysis in at least 80% of AFP cases.

Case definition

Acute onset of focal weakness or paralysis characterised as flaccid (reduced tone) without other obvious cause (e.g., trauma) in children less than 15 years old. Transient weakness (e.g., post-ictal weakness) should not be reported.

Duration

AFP surveillance started in January 1996 and is a continuing project of the CPSP.

Expected number of cases

One case per 100,000 population less than 15 years of age, per year, is expected. This should result in approximately 58 cases reported per year in Canada.

Ethical approval

Health Canada and the Public Health Agency of Canada Research Ethics Board

Analysis and publication

Weekly reports on adjudicated AFP cases are provided to the Pan American Health Organization (PAHO), the regional office for the Americas of the World Health Organization (WHO). PAHO collects this information from all member states for weekly provision to the WHO. Annual reports are provided to the CPSP, for dissemination to partners and participating physicians and nurses through the *CPSP Results* publication (www.cpsp.cps.ca/publications). AFP data are also reported to PHAC's Canadian Notifiable Disease Surveillance System and provincial and territorial epidemiologists. Ad hoc reports, presentations, and other publications are developed at the discretion of the Centre for Immunization and Respiratory Infectious Diseases of the Public Health Agency of Canada. Data may be published in conjunction with data from other surveillance activities for AFP and poliomyelitis.

CPSP
CANADIAN PAEDIATRIC SURVEILLANCE PROGRAM

Reference

1. Working Group on Polio Eradication, Bentsi-Enchill A. Protocol for the investigation of acute flaccid paralysis and suspected paralytic poliomyelitis. Paediatr Child Health 1997;2(6):409-12. Available from: www.pulsus.com/journals/abstract.jsp?jnlKy=5&atlKy=97&isuKy=378&isArt=t