Laboratory and Epidemiology Communications

Surveillance of Poliovirus-Isolates in Japan, 2000

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Communicated by Tatsuo Miyamura

(Accepted May 9, 2001)

In 2000, 14 polioviruses were isolated from nine clinical patients and three healthy individuals among nine prefectures in Japan. These isolates were sent to National Institute of Infectious Diseases (NIID) and subjected to intratypic differentiation by PCR-restriction fragment length polymorphism method developed by Dr. Radu Crainic (1). As shown in Table 1, all of the examined polioviruses were vaccine-derived strains. One vaccine-associated paralytic poliomyelitis (VAPP) case in Miyazaki Prefecture (case 5) was a 37-year-old male with unknown vaccination history. His daughter had received a second administration of oral poliovirus vaccine (OPV) 23 days before the onset of his paralysis (case 10). Antigenically type 3 polioviruses, with Sabin 3 in the VP1 region and Sabin 1 in 3D, were isolated from both the father's and the daughter's stool specimens, indicating that the daughter was the source of infection.

Poliomyelitis cases in Japan from 1970 to 2000 are summa-

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rized in Table 2. Following the report of fatal encephalopathy (case 4) after administration of OPV in Fukuoka Prefecture, polio immunization practices in Japan were temporarily ceased because of safety concerns. A total of nine polioviruses were isolated from seven neurological cases including four transient paralysis cases during April and May of 2000. However, no poliovirus-positive acute flaccid paralysis was reported after the resumption of OPV immunization in autumn of the same year.

On 29 October 2000 in Kyoto, the Commission for the Certification of Poliomyelitis Eradication in the Western Pacific Region certified that the WHO Western Pacific region was free of indigenous wild poliovirus transmission (2). In three regions, Africa, East Mediterranean, and South East Asia, wild polioviruses are still circulating. The 2000 outbreak caused by circulation of vaccine-derived poliovirus in Haiti

Table 1. Characterization of poliovirus isolates in 2000

Case No.	Code	Age	Sex	Date of vaccination		Date of onset	Date of sampling	Clinical diagnosis	Serotype	Intratypic differentiation
				in the patient	in the area					
1	00-Aichi-1	1Y	F	99-6-21	99-10-7		99-10-12	Healthy	Polio-2	Vaccine-like
2	00-Fukuoka-1	6M	F	99-11-2		99-12-1	99-12-9	Diarrhea	Polio-1	Vaccine-like
3	00-Toyama-1	7M	F	99-9-13			99-12-17	Healthy	Polio-2	Vaccine-like
4	00-Fukuoka-2	3Y	F	00-4-4		00-4-18	00-4-24	Encephalophathy	Polio-3	Vaccine-like
5	00-Miyazaki-1	37Y	M	Unknown		00-5-19	00-5-25	Poliomyelitis	Polio-3	Vaccine-like
6	00-Kawasaki-1	1Y	F	00-5-15 (2nd)		00-5-19	00-5-22	Transient paralysis	Polio-3	Vaccine-like
7	00-Shimane-1	1Y	F	00-4-27 (2nd)		00-5-18	00-5-23	Transient paralysis	Polio-3	Vaccine-like
8	00-Amagasaki-1	1Y	F	00-5-16		00-5-26	00-6-2	Transient paralysis	Polio-3	Vaccine-like
9	00-Kyoto-1	1Y	F	00-4-4		00-5-16	00-5-19	Transient paralysis	Porio-2&3	Vaccine-like
10	00-Miyazaki-2	11M	F	00-4-26 (2nd)			00-6-5	Healthy	Polio-3	Vaccine-like
11	00-Ehime-1	6M	M	00-5-12		00-5-17	00-5-26	Encephalitis	Polio-1&2	Vaccine-like
12	00-Kyoto-2	3M	M	00-5			00-5-20	Diarrhea	Polio-2	Vaccine-like

Table 2. Annual incidence of typical poliomyelitis (1970-2000)

Year	No. of cases			No. of cases with indicated serotypes					
	Total	Attempted for virus isolation	Poliovirus positive cases	1	2	3	1,3	2,3	1,2,3
1970	5	5	3	–	2	1	–	–	–
1971	2	2	2	–	1	1*	–	–	–
1972	2	2	2	–	1	–	–	1	–
1973	6	6	5	–	4	1	–	–	–
1974	3	3	2	–	2	–	–	–	–
1975	1	1	1	–	–	–	–	–	1
1976	1	1	0	–	–	–	–	–	–
1977	2	2	2	–	2	–	–	–	–
1978	1	1	1	–	–	–	–	1	–
1979	1	1	1	–	1	–	–	–	–
1980	4	4	4	1*	1	–	–	2	–
1981	4	4	2	–	1	–	–	1	–
1982	0	0	0	–	–	–	–	–	–
1983	2	2	1	–	1	–	–	–	–
1984	0	0	0	–	–	–	–	–	–
1985	1	1	1	–	1	–	–	–	–
1986	1	1	1	–	–	1	–	–	–
1987	0	0	0	–	–	–	–	–	–
1988	0	0	0	–	–	–	–	–	–
1989	0	0	0	–	–	–	–	–	–
1990	0	0	0	–	–	–	–	–	–
1991	1	1	1	–	–	–	–	1	–
1992	2	2	2	–	–	2	–	–	–
1993	3	3	3	–	2	1	–	–	–
1994	1	1	1	1	–	–	–	–	–
1995	0	0	0	–	–	–	–	–	–
1996	0	0	0	–	–	–	–	–	–
1997	0	0	0	–	–	–	–	–	–
1998	2	2	2	1	–	1	–	–	–
1999	0	0	0	–	–	–	–	–	–
2000	1	1	1	–	–	1	–	–	–

* : Non-vaccine-like

and the Dominican Republic (2), and the occurrence of importation of wild poliovirus in China in 1999 (3) warned of the risk of poliovirus reintroduction to all polio-free countries. Until global eradication of poliomyelitis is achieved, it is necessary for all polio-free countries to maintain high immunity to poliomyelitis, and to strengthen surveillance systems for the sensitive detection of circulating poliovirus strains.

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