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CLINICAL APPLICATION OF A LIVE VARICELLA VACCINE (OKA STRAIN) IN A HOSPITAL

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A total of 239 children, including 22 high-risk children and 55 non-high risk diseased children have been immunized with a live varicella vaccine (Oka strain) since June, 1978. No clinical reaction attributable to the vaccine has been observed. Of these children, 87 received emergency vaccination. Of 47 children receiving emergency vaccination because they had been in contact with varicella patients either in hospital, school or a playground, only 5 developed varicella and their symptoms were mild. Of 40 children receiving emergency vaccination because of exposure to varicella in their home, 10 developed mild varicella and 30 were protected. Clinical symptoms of varicella when seen seemed to be due to incomplete protection because the vaccine was given too late rather than to clinical reactions to the vaccine. During follow-up period of 6 to 66 months after vaccination, 8 children showed very mild rashes without fever as the result of exogenous varicella infection.

RESULTS AND DISCUSSION

From June 1978 to June 1983, a live varicella vaccine (Oka strain) at viral doses of 300 to 2,000 PFU was given to 239 children (22 high-risk children, 55 diseased children not receiving immunosuppressive therapy and 162 normal children). The high-risk children consisted of patients with acute leukemia, hypereosinophilic syndrome, idiopathic thrombocytopenic purpura, pure red cell anemia, rheumatic fever, nephrosis, solid malignant tumor, West syndrome, juvenile rheumatic arthritis and mucocutaneous lymphnode syndrome and encephalopathy receiving one or two drugs such as ACTH, cortisone, azathioprine, vincristine, actinomycin D and cyclophosphamide before and after vaccination. Of the 22 high-risk children, 9 received emergency vaccination and only in 1 patient who received vaccination on the day that clinical-signs of varicella appears in her elder brother, 2 to 3 mild rashes were observed on day 13 after vaccination. Thirteen high-risk children who received non-emergency vaccination were free from any varicella symptoms. The non-high risk diseased children consisted of those with epilepsy, nephritis, Down's syndrome, renal tubular acidosis, congenital anomaly of the urinary tract, meningoencephalocele, asthma, nutritional disturbance, congenital heart disease, and pertussis.

The serological response was examined in 180 cases. Subjects were classified into three groups: those receiving 300–500, 600 to 750, and 1,000 to 2,000 PFU, respectively. Results are shown in Figs. 1, 2 and 3. The seroconversion rates in the three groups were not sig-

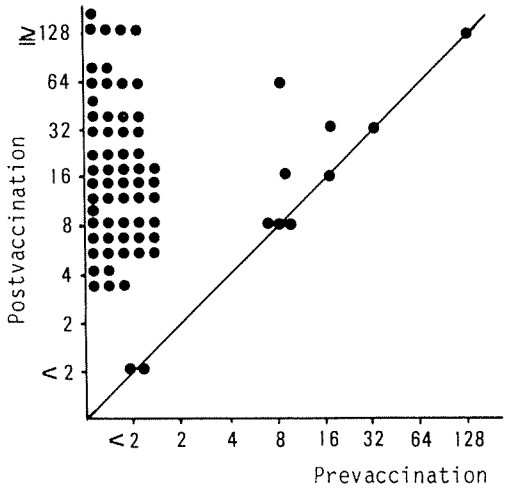

FIGURE 1. Antibody titers before and after vaccination. Virus dose 300–500 PFU.

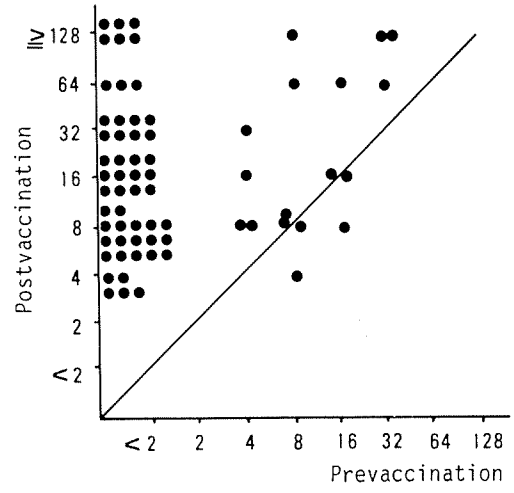

FIGURE 2, Antibody titers before and after vaccination. Virus dose 600–750 PFU. (IAHA test).

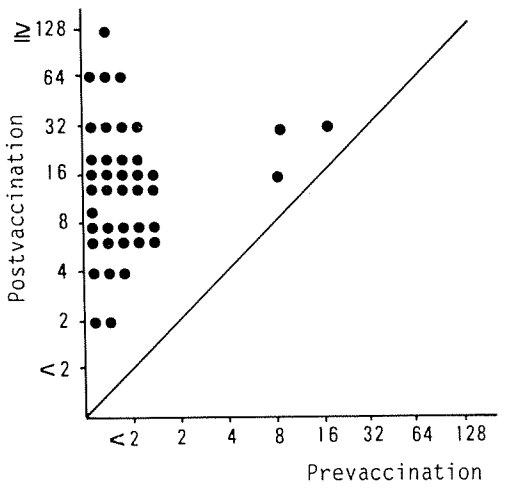

FIGURE 3. Antibody titers before and after vaccination. Virus dose 1,000–2,000 PFU.

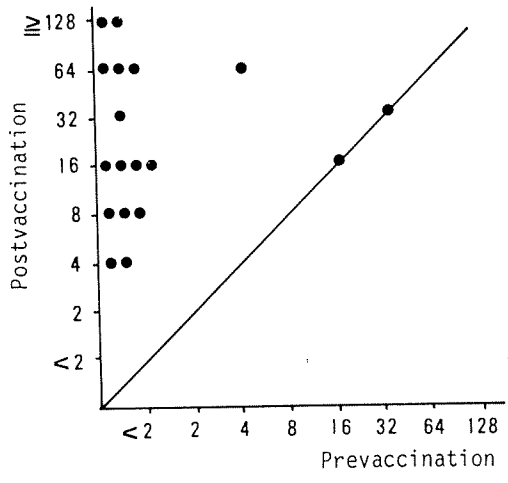

FIGURE 4. Antibody response of children with high-risk after vaccination.

nificantly different.

Emergency vaccination was done in 87 children. Of 47 children who had contact with varicella patients in hospital, school or a playground, 41 were protected, while 5 had a few rashes 11 to 47 days after vaccination. One patient showed the natural course of varicella because vaccination was performed 6–7 days after exposure. Of 40 children who had contact with varicella patients at home, 30 children were protected. Six children had several rashes 9 to 14 days after vaccination, and 4 children showed the natural course of varicella 9 to 14 days after vaccination.

In a follow-up of the vaccinees for 6 to 66 months, 8 children developed very mild vari-

TABLE 1. *Appearance of clinical varicella symptoms in the vaccinated children*

Case	Sex and age	Underlying disease	Drug used	Virus dose (PFU)	Antibody titer		Skin test	Clinical manifestation
					Before	After		
1	M 4	Epilepsia	Hydantoin Phenobarbital	500	IAHA <2	128	(−)	During prevalence after 2 years, several rashes without fever
2	M 4	Diabetes mellitus	(−)	500	CF <4	32	4×4	During prevalence after 2 1/4 years, 10 rashes without fever
3	F 2	(−)	(−)	500	CF <4	16	15×12	During prevalence after 1 year, 4 rashes
4	M 1	(−)	(−)	500	IAHA <2	16	5×5	During prevalence after 3 3/4 years, several rashes without fever
5	M 3	Epilepsia	Sodium valproate	750	IAHA <2	16	4×4	After 1 year, mild rash
6	M 5	Asthma Bronchiale	(−)	750	ND[a]		6×7	After 1 2/3 years, 30 rashes without fever
7	M 1	(−)	(−)	750	IAHA <2	8	4×5	After 1 2/3 years, mild rash without fever
8	F 4	(−)	(−)	2,000	IAHA <2	64	ND	During prevalence after 1 year, 2 rashes without fever

[a] Not done.

cella symptoms due to exogenous varicella infection as shown in Table 1.

It is concluded that vaccination with a live varicella vaccine gave excellent results in terms of both seroconversion and protective effect against varicella. A few of the vaccinated and seroconverted subjects later developed varicella due to exogenous infection, but this symptoms were very mild.