Seroprevalence of Antibodies after Vaccination against Poliomyelitis

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After six cases of paralytic disease were reported in the southern region of Saudi Arabia an investigation was conducted to evaluate the seroprevalence of antibodies against poliomyelitis in normal vaccinated children. The children studied were selected randomly from the Al Gassem and Najran regions.

The method was used to determine the antibody levels and the overall seropositive rates in both regions for poliomyelitis were 99.9% respectively. Although this phenomenon of low known in developing countries, further investigations are needed to know the causes.

Six cases with paralytic disease were reported in Giza in the southern part of the kingdom of Saudi Arabia. These cases were suspected to be due to poliomyelitis. All patients in the reported cases had been vaccinated. One of the basic steps in investigating such a situation is to conduct a survey to determine the seroprevalence of antibodies against poliomyelitis after vaccination. In view of the results further analytical studies or trials can be conducted to clarify the problem.

Two regions were selected, Najran which has a similar environmental background to Giza (where the paralytic cases were reported) and Al Gassem in the central region.

No cases of poliomyelitis were reported from these two areas during the year 1989.

Methods
In this preliminary study 72 children were selected from the Najran and Al Gassem areas and 3 ml of blood was
collected in a plain tube at the age of 6–12 months after completing the first three doses of oral poliomyelitis vaccine (OPV) at the ages of 3, 4 and 5 months. The serum was separated and sent to the laboratory where serial doubling dilution were prepared. Three sets of each dilution were prepared and the cytopathic effect (CPE) neutralization method (CDC protocol) was used to evaluate the titre of antibody.

To produce enhanced seroconversion, some modifications in the poliomyelitis vaccination programme have been tried. Increasing the number of doses of OPV was suggested and tried in certain parts of India. In other countries a combination of live and inactivated polio vaccine was used to decrease the annual incidence of paralytic poliomyelitis.