Apropos “Seroprevalence of Antipolio Antibodies among Children <15 Years of Age in Border Provinces in China”

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Certainly for maintenance of a polio-free status in China, it is desirable to maintain adequate immunity to poliovirus serotypes in the population with a booster dose of bivalent type 1 and 2 vaccine for teenagers (1). Poliovirus vaccines, live or attenuated, were not available prior to the mid-1950s. All those who were born before the mid-1940s were never offered any prophylactic immunization against poliomyelitis. In all probability, those who got infected during their early infancy or childhood with circulating poliovirus, with no clinical manifestation of paralytic poliomyelitis, acquired protective antibodies against poliovirus. With the passage of time, the antibody levels decline, and in the absence of circulating poliovirus in the environment, those people may remain antibody negative to three poliovirus strains.

Even after a full course of primary or subsequent revaccination, there might be a similar decline in the level of protective antibody. The waning of the antibody level after polio vaccination has been shown to be directly related to the time when the last dose was given and not to the number of doses (2).

In order to maintain the polio-free status in China (1), screening of its citizens who are aged ≥70 years should be carried out to monitor their poliovirus-neutralizing antibody profile. That would exclude the existence of polio-susceptible people who might provide a virgin soil for paralytic poliomyelitis. For instance, it is on record that two healthy British males, aged 62 and 65 years, on their holiday trip to Morocco were afflicted with acute flaccid paralysis (3).

Several children and adults under chemotherapy regimen after organ transplant and those infected with human immunodeficiency virus (HIV) constitute cohorts lacking poliovirus-neutralizing antibody (4). Cytostatic therapy for acute lymphocytic leukemia in children results in a temporary reduction in specific antibody levels. For instance, the reduced and the standard chemotherapy regimens for acute childhood lymphoblastic leukemia in Utrecht, Netherlands, were accompanied by decreased antibody levels against vaccine-preventable diseases (5). However, to our knowledge, no information about the poliovirus antibody status of those who have undergone an organ transplant or chemotherapy for a childhood malignancy is available from China, though a large number of organ transplants take place in that country.

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Reply to ‘Apropos “Seroprevalence of Antipolio Antibodies among Children <15 Years of Age in Border Provinces in China”’

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We acknowledge the letter of Arya and Agarwal (1). Children <5 years of age, particularly children <1 year of age, are most vulnerable to wild poliovirus (WPV). However, some countries with no WPV transmission for a long period of time and relatively low levels of vaccination coverage have encountered similar outbreaks characterized by a large proportion of cases in adults (2, 3). Considering the decline in levels of antibodies to poliovirus, more attention should be paid to adults.

However, avoiding outbreaks will depend on ensuring high immunity in the general population, focusing on children <5 years of age. The people aged ≈70 years under chemotherapy regimen after organ transplant and those infected with human immunodeficiency virus account for a small proportion of the overall population. Therefore, it is not necessary to specially monitor the poliovirus-neutralizing antibody profiles of these populations all over China. However, monitoring the poliovirus-neutralizing antibody levels of the entire population should be carried out in the provinces bordering the countries where WPV is endemic.

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