Abstract

With the massive vaccination campaigns with the inactivated poliomyelitis vaccine starting in 1955 and its oral presentation in 1961, this disease has been controlled in many countries. However, wild polio virus is still transmitted in many developing countries. The study reported in this article had the objectives of estimating the prevalence of antibodies against polio for three types of virus (1, 2 and 3) in the population from 12 to 59 months of age in Mexico and determining the factors associated with the absence of immunity. One section of the National Seroepidemiology Survey (NSS), a study with a representative sample of the Mexican population, included the analysis of 5,260 blood samples for polio seropositivity. These samples were processed using the technique of plaque-reduction-neutralization, with the cut-off for positive titer values at 1:8. The national immunity levels reported for the three types of polio virus were: type 1 (89.8%); type 2 (97.6%); and type 3 (85.4%). The state with the lowest seroprevalence was Campeche, with 59.7 per cent, and the highest observed was Baja California Sur, with 93.0 per cent. The NSS also showed that the immunity level increases with age. There were some differences observed by place of residence; seroprevalences were higher in the urban areas (type one, 93.4%; type two, 98.5% and type three, 88.2%) than in the rural zones (86.6%, 96.8% and 82.9%, respectively). As expected, previous vaccination with three or more doses, referred verbally by the parent or guardian of the child, was associated with higher positivity. For vaccinated children, these proportions were 92.7, 98.6 and 88.8 per cent; for the non-vaccinated, 80.6, 94.1, and 74.1 per cent. Socio-economic level, classified as high, medium and low, presented a direct relation with antibody levels; these were: type one, 85.9 per cent in the lowest group and 95.8 per cent in the highest; type two, 96.7 per cent and 98.5 per cent; and type three, 82.0 per cent and 90.8 per cent. The other variables which had a statistical association with the immunological status of young children were: vaccination with two or three doses, and this is clearly the most important characteristic and the means by which eradication may occur; residence in urban areas, medium and high socioeconomic level; as well as increasing age, which allows for greater opportunity to receive the vaccine or to come in contact with the virus.

Keywords

poliovirus, seroprevalence, plaque-reduction-neutralization