Problems with the oral polio vaccine

To the editor:

The year 2005 marked the fiftieth anniversary of the development of the first poliovirus vaccine. At the end of the same year, it was reported that children in a secluded Amish village in the United States had contracted vaccine-derived polio¹. Now, over 70 children in Nigeria have also reportedly contracted the disease².

Although polio eradication remains an achievable goal, these vaccine-related cases are a strong wake-up call that needs to be taken seriously by the world community at large and the developed world in particular.

The Indian Medical Association Sub-Committee's report on Polio Eradication Initiative is an eye-opener³. It notes that, in 2006, despite repeated doses of oral polio vaccine (OPV) during repeated mass pulse immunization campaigns for communities, there were an alarming 1,600 cases of vaccine-induced polio. Even more alarmingly, this figure may underestimate the magnitude of the problem, as there were many vaccinated children with polio-like paralysis in whom the polio virus was not cultured from the stools.

These observations suggest that the OPV has outlived its utility; it is not providing herd immunity anymore—children seem to be getting polio from the vaccine, and the vaccine itself is ineffective in preventing polio transmission from another source.

Many developed countries use a nondisseminating injectable polio vaccine (IPV) for immunization and have succeeded in eliminating the disease. The IPV confers excellent mucosal immunity in vaccinated children and provides a high degree of herd immunity in the community.

The cost of producing the IPV is only marginally more than that of producing the OPV, but its selling price is exorbitantly high⁴, owing to high demand from developed countries and inadequate supplies. The cheaper alternative—OPV—seems to have come with a different price tag, burdening the environment with modified viruses that perpetuate the risk of circulating revertant species that probably account for the reported polio outbreaks. It is therefore time for a worldwide shift from OPV to IPV, or we will lose our grip on the disease.

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