
Universal use of inactivated polio vaccine

Dear Editor,

Changes in the international scenario have demonstrated that the risks of vaccine-associated paralytic polio (VAPP) or paralysis caused by vaccine-derived poliovirus (VDPV) are higher than the risk of paralysis caused by wild viruses, requiring that the oral polio vaccine (OPV) be replaced with the inactivated polio vaccine (IPV), as proposed by Falleiros-Carvalho & Weckx.¹

The major issues related to the introduction of IPV in routine vaccine schedules are concerned with lower gastrointestinal immunity, difficult application (parenteral use), availability and costs. Recent studies have revealed that children previously vaccinated with two doses of IPV had low fecal shedding of vaccine viruses after being challenged with one dose of OPV; moreover, the risk of reversion of Sabin strains to neurovirulent forms did not increase after the use of IPV.^{2,3}

Combined vaccines containing IPV improved the acceptance of the inactivated vaccine, since they provide vaccine coverage against several diseases at lower costs. In the last few years, the number of countries using IPV in sequential schemes (IPV followed by OPV), or in exclusive ones, has increased; however, it has been estimated that only 100 million doses can be produced every year. The technology for IPV production has been well known for over five decades, but only few laboratories are allowed to produce this vaccine, and production of the vaccine is limited.⁴

According to WHO, 4 to 5 years after global eradication of poliomyelitis, the use of the oral vaccine should be simultaneously discontinued in all countries, the stocks of wild poliovirus should be destroyed, and only the stocks of (monovalent and trivalent) OPV should be kept for control of an occasional reappearance of the disease.⁴

The discontinuation of polio vaccination will cause the number of susceptible individuals to increase within a few years. In industrialized countries that already use IPV, the interruption of polio vaccination is quite unlikely, due to the fear of bioterrorism. It should be noted that large stocks of wild viruses are necessary for the production of this vaccine and, no matter how strong international control over laboratories, it is not possible to prevent future risks of accidents or of criminal actions, with reintroduction of wild viruses in non-immune populations.^{1,4} Therefore, new

inactivated vaccines have been developed, which are produced from Sabin strains, and the transfer of this technology to developing countries has been brought into discussion.⁵

While new inactivated vaccines are not available, industrialized countries will be free from polio if high IPV coverage schedules are maintained, but the policy for countries that exclusively use OPV nowadays, as is the case of Brazil, must be discussed. If the use of OPV is discontinued without the introduction of IPV, the population of these countries will become susceptible to polio within a very short time frame and will have to rely on the efficiency of epidemiological surveillance for the early detection of polio cases and of stocks of OPV to control possible outbreaks. Vaccine-derived polioviruses circulated for many years before they could be detected and, after confirmation of paralysis caused by VDPV, the average time to organize mass vaccination campaigns in order to prevent the dissemination of these viruses has amounted to over 6 months.⁶ Therefore, epidemiological surveillance must be enhanced, since its standards do not meet those recommended by WHO in several countries, including Brazil.

Since the major obstacles to polio eradication are related to VDPV (either circulating or shed by immunosuppressed individuals),⁷⁻⁹ new vaccination schemes must be immediately adopted. We agree with Falleiros-Carvalho & Weckx that it is necessary to plan the introduction of IPV in Brazil and to find ways to produce this vaccine locally and not to depend on its purchase from other countries.

In 2005-2006, only four countries are still endemic to wild polioviruses (Nigeria, India, Pakistan and Afghanistan); however, 22 countries that were previously free from polio have been reinfected since 2003, due to the decrease in vaccine coverage rates.⁹ Both OPV and IPV are efficient in the prevention of poliomyelitis, but none of them completely prevents the silent replication of wild viruses and VDPV in the intestine. The transmission of polioviruses can be prevented through high vaccine coverage schemes, and the use of OPV must be maintained in Brazil until IPV can be implemented, in order to avert the risk of paralysis by wild viruses imported from other countries or caused by VDPV.

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Effectiveness of dual and triple anti-HIV therapy

Dear Editor,

I would like to make some comments about the original article written by Romanelli et al.¹ and about the editorial written by Oleske.²

Initially, I want to highlight the importance of the article by Romanelli,¹ which provides health professionals with important information about when to start anti-HIV therapy in children. This and other studies have advocated a change in international guidelines for the treatment of HIV infection in children in the last few years. These guidelines included the initial indication of formal dual therapy, then the restriction on the use of dual therapy (mild cases), and finally, the formal indication of triple therapy.

In regard to the editorial written by Oleske,² some explanations and comments are necessary. At the end of the first paragraph, Oleske affirms that the pathogenesis of HIV infection and the general principles of therapy are the same for adults, adolescents, children and infants infected with

HIV. However, it has been well established that the dynamics of viral replication and the immunopathogenesis of HIV infection in adults and children have remarkable differences, and some of these differences still have to be clarified.^{3,4} And it is the difference in the dynamics of viral replication and pathogenesis of HIV infection in children that determines the different guidelines for antiretroviral therapy in children and adults, especially regarding parameters such as implementation of treatment, treatment success and failure, and peculiarities about immune reconstitution.^{5,6}

In the second paragraph, Oleske affirms that the pharmacokinetics of the multiple drugs used in the treatment of HIV infection also accounts for more rapid disease progression in pediatric patients. It is common knowledge that when one refers to progression of HIV infection, one usually describes the natural history of the disease; to be natural, it requires exclusion of antiretroviral therapy. Therefore, this type of inference or casual relationship is not appropriate. I think the article should mention the paucity of pharmacokinetic studies in children, mainly in the first months of life. The available studies usually have a too small sample size and include different age groups.^{7,8}

Finally, I would like to remind pediatricians and infectologists who attend to HIV-infected children that the management of pediatric HIV infection in Brazil should follow the Guidelines for Clinical Treatment of HIV Infection in Children, elaborated by the Brazilian National STD/Aids Program of the Brazilian Ministry of Health. These guidelines are updated regularly, and the 2006 version is already available at www.aids.gov.br.

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