adverse effect of OPV appears unfounded.

OPV being a live virus vaccine, it can provide good antibody response even with one dose. The protection conferred by two doses is about 90-100%(2). The adverse effects of a drug or vaccine increases with the number of doses administered, and a severe form of illness observed in partially immunized children cannot be considered as an adverse effect. As observed by the authors the high mortality among partially immunized children were due to a severe form of the disease (bulbar involvement). As this study was not a population based prospective study, it cannot be said that this complication is more among partially immunized children. There is also a possibility of partially immunized children developing milder form of disease and not seeking admission(3).

As there were no viral studies done to detect non-polio agents, and the maintenance of cold chain or potency of vaccine were not assessed prior to vaccinations, the conclusion reached by the authors are mere speculations. These loose statements can have adverse repercussions on immunization practices in our community and should be avoided.

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REFERENCES

1. Mathur GP, Mathur S, Gupta V, *et al.* Poliomyelitis with special reference to immunization status. Indian Pediatr 1991, 28: 625-627.
2. Wilson MH. Immunization. *In:* Principles and Practice of Pediatrics, 1st edn. Eds. Oski FA, De Angelis CD, Feigin RD, Warshaw JB. Philadelphia, JB Lippincott Co, 1990, p 560.
3. Sen S, Sharma D, Singh S. Poliomyelitis in vaccinated children. Indian Pediatr 1989, 28: 423-429.

Reply

In this period of three years (January, 1986-December, 1988) retrospective study factors significantly affecting the disease morbidity and mortality were studied. The present study showed that serious type of illness (bulbospinal and bulbar type) was more in partially immunized children (25%) as compared to unimmunized children (16.8%). The mortality was more than two times higher in the partially immunized (29.6%) as compared to unimmunized (11.2%)(1).

Sen *et al.* have reported the possibility of partially immunized children developing milder form of disease and not seeking admission in the hospital(2). If partially immunized children can develop mild disease why some children cannot develop severe form of poliomyelitis seeking hospitalization.

Immunization programme suffers adversely in a community if any OPV vaccinated child suffers from poliomyelitis. At this it is difficult to convince the parents and other members of the community that the child who suffered from the disease was due to other non-polio viral agents or the cold chain was defective or the vaccine was not potent.

If we want that our immunization programme improves we should not only study the logistics but also the adverse effects of OPV vaccine. It is high time that a national study should be carried out in immunized

children suffering from disease which should include viral studies, maintenance of cold chain and potency of vaccine.

Administration of a potent vaccine in a healthy child should be our 'moto'.

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REFERENCES

1. Mathur GP, Mathur S, Gupta V. *et al.* Poliomyelitis with special reference to immunization status. Indian Pediatr 1991, 28: 625-627.
2. Sen S, Sharma D., Singh S. Poliomyelitis in vaccinated children. Indian Pediatr 1989, 28: 423-429.

Comments

The observation of Mathur *et al.*(1) that partially vaccinated children develop a more serious form of poliomyelitis is granted, though our experience is otherwise(2,3). The number of cases in their study is too small to make a categorical comment of this nature. Their explanation that the greater severity of the illness is because of OPV, is however untenable because there is no temporal cause and effect relationship. Even on theoretical grounds, there are no reasons to suspect an adverse reaction of this nature with OPV. OPV can be implicated as a cause of paralysis only if it has been administered within 3 weeks preceding the illness, or if vaccine strains of the virus can be isolated from the affected patients.

Therefore, I would tend to agree with Drs. Joseph and Yashwant that "high mortality among partially vaccinated children and its interpretation as an adverse effect of OPV appears unfounded". Their statement that 2 doses of OPV gives 90 to 100% protection is not correct. This may be true for countries with temperate climates, but in tropical countries including India, even 3 doses of OPV does not give over 75% protection(4,5). Also their statement, that "the adverse effects of a drug or vaccine increases with the number of doses administered" does not apply to OPV, as OPV is well known to be a very safe and harmless vaccine. Even a greater number of doses, and larger quantity per dose is singularly free from side effects.

*The data quoted by Mathur et al.(1) needs to be interpreted with caution. They say that 29.6% of the partially vaccinated group with poliomyelitis expired, really translates to 14/48 cases in absolute numbers. To draw a gener*al conclusion from such small numbers is hazardous, especially for such an important vaccine as OPV.

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REFERENCES

1. Mathur GP, Mathur S, Gupta V, *et al.* Poliomyelitis with special reference to immunization status. Indian Pediatr 1991, 28: 625-627.
2. Sen S, Sharma D, Santhanam S. A clinical and serological study of acute paralytic poliomyelitis in immunized and non-immunized children. Indian Pediatr 1985, 22: 891-898.
3. Sen S, Sharma D, Singh S, Malik P, Khare S, Kumari S. Poliomyelitis in