Letters to the Editor

Immunization Status of Hospitalized Children with Acute Paralytic Poliomyelitis

Several interesting pieces of information and lessons emerge from the study reported by Srivastava and Israil (l). During 12 months as recently as in 1990/91, after India had celebrated 85% coverage with 3 doses of OPV in the Children's' Summit in New York in 1990, one hospital in Patna alone had hospitalized at least 96 children with acute paralytic poliomyelitis (APP). So the first lesson is that new inputs in the immunization strategy against APP are necessary in India, if we are to control and eventually eradicate it. If we keep doing what we always did, we will keep getting what we always got.

Secondly, 14 (15%) children had received so-called "full immunization" with 3 doses of OPV prior to getting APP. The authors recognize that vaccine failure rate is high in Patna and attribute it to presumed breaks in the cold chain. This illustrates that many pediatricians are yet not aware of the fact that there are geographic differences in the protective and immuno-genic efficacy values of 3 doses of OPV(2). This phenomenon was first reported in Indian Pediatrics in 1972(3). Since then much information has emerged on this subject(4-8). It is today unethical to recommend 3 doses of OPV as "full immunization" for any infant in India(7-9). If any pediatrician recommends only 3 doses of OPV to an infant, and if the infant subsequently develops APP, that pediatrician has not practiced scientific medicine; the parents deserve monetary compensation and the child deserves full and long-term rehabilitation at no cost to the family. Scientific practice calls for a minimum of 5 doses of OPV during infancy and at least 2 more doses within pre-school age, for every child (7-9). Certainly cold chain must be maintained without break.

The distribution of children according to the place of immunization whether they had received 3-doses or only 1 or 2 doses of OPV, were nearly identical, thereby showing that more children receive their immunization in sub-centres and primary health centres than in dispensaries and medical colleges(l). If the parents of the unimmunized children had been asked about their most likely places of choice, had they decided to take their children for immunization, probably the distribution would not have been different. In other words, the data presented in the paper do not show that vaccine failure was associated with place of immunization. Let me once again assert that the most important reason for 3-dose OPV failure is not poor cold chain in India and many other developing countries; it is poor 3-dose OPV efficacy, the cause of which is not known (8,9). It can be overcome by increasing the number of doses to 5 to 7 per child(7-9).

The fourth point I wish to highlight is that 44% of immunized children and about 36 to 38% of children given 1 to 3 doses of OPV, had developed APP below 12 months of age(l). This shows that polioviruses had continued to circulate intensely in the community. Only when the circulation is intensive do infants get infected with such high frequency. This also makes it imperative to plan additional inputs to control APP. What could immediately be done is to give at least 5 doses in infancy. An alternate input is to introduce pulse immunization in order to increase per capita utilization of OPV as well as to attempt to break the transmission of polioviruses in the country (9,10)

break the transmission of polioviruses in the country(9,10).

Finally, the data shown in the *Table I* deserve re-analysis after segregating the 82 children with APP into 32 with 1 or 2 doses and 50 without any immunization. Thereafter, children with the onset of APP below 12 months should be analyzed separately from those who developed illness after 12 months in order to correct for any age-related associations with mild, moderate or severe muscle weakness. A second confounder to be included in segregation for analysis is the history of any intramuscular injection during the incubation period of APP. Provoked APP tends to be associated with more severe muscle weakness. Without examining these variables the conclusion that immunized children had less severe muscle weakness is misleading.

For the sake of completion, let me add: yet another potential confounder is the serotype of poliovirus causing paralysis. Type 1 poliovirus is more likely to cause APP in unimmunized children and type 3 virus is more likely to cause vaccine failure APP(3,8). Anecdotally, I suspect that the severity of type 1 disease may be more than that of type 3. In other words the concept of "partial" immunity is to be really understood as "differential" immunity to one or two serotypes of poliovirus and lack of immunity to the remaining. A child with any detectable immunity to a given serotype of poliovirus as a result of feeding OPV, will not develop APP due to that serotype virus. There is no evidence in this or earlier studies to prove that true "partial" immunity is induced by an inadequate number of doses of OPV. Full immunization to protect from disease is the birthright of every child.

T. Jacob John,

Former Professor and Head, Department of Clinical Virology CMC Hospital, Vellore 632 004.

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