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Acute Paralytic Poliomyelitis in Rural Maharashtra

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A survey conducted in 1981 in India reported the annual incidence rate of poliomyelitis in children of 0-4 years varied from 1.5 to 1.9 per thousand children with an estimate that on an average there were 1,40,000 to 1,79,000 cases of poliomyelitis in India(1). This incidence was the highest in the world. Recently, the National EPI review has worked out the annual incidence rate in children below 5 years to be 0.90 per thousand children. This is lower than that reported earlier, but still very far away from the goal of global eradication of poliomyelitis by the year 2000 as proposed by the 41st World Health Assembly in May 1988(2).

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The aim of this study was to assess the clinical profile and factors predisposing to development of poliomyelitis in cases of acute poliomyelitis admitted in a rural hospital of Eastern Maharashtra.

Material and Methods

The study comprised 64 cases of acute poliomyelitis admitted to the Pediatric Wards of Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha. The complete clinical features from the onset of the prodromal symptoms till the development of paralysis were noted. The presence of factors known to provoke paralysis in patients of poliomyelitis were recorded, e.g., trauma, intramuscular injections and tonsillectomy. The vaccination status was determined by detailed questioning of parents and verified from vaccination cards.

Results

Of 64 cases of acute poliomyelitis, 13 (20.6%) were less than 1 year, 30 (46.8%) between 1 and 2 years and 19 (29.7%) more than 2 years. The youngest patient was 4-months-old.

Forty nine patients (76.5%) did not receive vaccination against poliomyelitis. In 12 patients (18.8%) the primary immunization was either incomplete or no booster dose was administered. In spite of receiving a complete course of immunization, 3 children (4.7%) developed acute poliomyelitis.

Fever was the main presenting complaint (52 cases) followed by diarrhea (9 cases), cough (7 cases) and vomiting (3 cases). Eight patients did not have any prodromal symptoms. No significant relationship of symptoms to the age were found (Table I).

No provocative factors for poliomyelitis were identified in 41 cases (64.0%). However, 23 cases (36.0%) had received intra-

TABLE I—Age vs Prodromal Symptoms

Age (yrs)	1	1-2	2-3	3-4	Total
No. of cases	13	31	15	5	64
<i>Prodromal symptoms</i>					
Fever	12 (92.3)	25 (80.6)	10 (66.6)	5 (100)	52 (81.2)
Loose stools	1 (7.7)	5 (16.1)	2 (13.3)	1 (20.0)	9 (14.06)
Cough	1 (7.7)	4 (12.9)	2 (13.3)	—	7 (10.9)
Vomiting	—	1 (3.2)	2 (13.3)	—	3 (4.7)
None	2 (15.4)	4 (12.9)	2 (13.3)	0 (0.0)	8 (12.5)

Figures in parentheses indicate percentages.

muscular injections during the prodromal period. Intramuscular procaine penicillin was administered in 6 patients; in the rest the nature of drug injected could not be ascertained. Of these, 17 developed paralysis within 1-3 days following the injection. In 3 cases the interval between the injection and onset of paralysis was more than 6 days. No relationship was found between post injection paralysis and the age of the child (*Table II*).

Spinal poliomyelitis was seen in 62 cases and spinobulbar poliomyelitis in 2 cases. The paralysis involved only one limb in 28 (43.8%) cases. Thirteen patients had left lower limb, 10 right lower limb, 4 right upper limb and 1 left upper limb involvement. Assymetric paralysis, involving both lower limbs was seen in 30 (46.9%) cases. Assymetric quadriparesis was detected in 4 patients of spinal poliomyelitis.

Both cases of spinobulbar poliomyelitis also had assymetric quadriparesis with intercostal muscle and diaphragmatic paralysis. Of these, one succumbed to respiratory failure.

TABLE II—Relation Between Injection and Post Injection Paralysis

Age (yrs)	Cases with injection	Cases without	Total
< 2	14	29	43
> 2	9	12	21
Total	23	41	64

The differences were not significant ($p > 0.05$).

Of the 23 cases who received intramuscular injections, 11 showed paralysis of the same extremity on which injection was given. In 8 cases the paralysis was not limited to the limb injected but also involved another limb as well. In 4 cases the paralysis was noted only in the non-injected limb.

Discussion

The peak age of incidence of acute paralytic poliomyelitis was between 1-2 years, similar age distribution has been previously reported(3-6). The clinical pres-

entation of the patients studied was also similar to that described earlier(4-6).

The prodromal symptoms were non-specific. However, during an epidemic a high index of suspicion even with non-specific symptoms is important to avoid provocative factors during this period. Provocative factors like trauma, intramuscular injections, tonsillectomy, etc. cause hyperemia of a particular segment of spinal cord thus increasing the concentration of the virus in that particular segment. These also disturb the blood brain barrier and enhance the possibility of paralytic manifestations(7). Intramuscular injection is the main provocative factor in rural areas. Nearly 37% of our cases had history of intramuscular injections, hence injudicious use of intramuscular injections should be avoided in an attempt to reduce or minimize paralytic poliomyelitis.

Since 5% of poliomyelitis cases were completely immunized, strengthening of the cold chain is necessary to ensure potency of the oral polio vaccine.

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Iniencephalus Clauses

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Iniencephaly is a rare congenital malformation characterized by retroflexion of the head, severe defects of the spine, that always include an exaggerated cervicothoracic lordosis and often anterior or posterior spina bifida, and usually other internal anomalies(1). Three varieties of the condition are described; (i) iniencephalus clauses without encephalocele, (ii) iniencephalus apertus with a small encephalocele, and (iii) iniencephalus apertus with an encephalocele larger than the cranial contents. With rare exceptions, the condition is incompatible with life. We report here a case of iniencephalus clauses.

Case Report

A full term boy was born to a 21-year-old primigravida by emergency Cesarean section. The antenatal period was unevent-

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