Original Articles
Qualitative study of wild polio cases in high risk districts of Uttar Pradesh, India

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ABSTRACT

Background. India has implemented a polio eradication strategy which includes national immunization days and house-to-house visits. While there has been a reduction in wild polio cases, a few districts in some states continue to harbour the virus. We did a qualitative survey in certain districts of western Uttar Pradesh to determine the reasons for continued occurrence of wild polio cases.

Methods. Five districts of western Uttar Pradesh were selected where 10 confirmed cases of polio were studied in their local settings using qualitative tools.

Results. All 10 cases were below 5 years of age and belonged to the poor socioeconomic group. Except 3, all had received some doses of oral polio vaccine before the onset of illness. The majority of parents had a 'feeling of guilt' and blamed the 'bad destiny of their child' for the disease. There was a strong belief that the 'polio vaccine is mixed with substances which can cause infertility' and that it was 'used for a particular community'.

Conclusion. Prevailing misconceptions and adverse attitudes to the polio vaccine need to be tackled urgently and sensitively to make the programme successful.

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INTRODUCTION

A decade ago, polio was endemic in 5 continents with 350,000 cases occurring in 1988 alone.1-3 By 2001 the number of wild polio cases decreased to about 3000 and the disease was concentrated only in parts of sub-Saharan Africa and South Asia. The Global Polio Technical Consultative Group (TCG) in its annual report in 1988 identified 20 countries (including India) with a high risk of continued virus transmission even after 2000.4 The strategy for polio eradication in India since 1995–96 has included special intensive drives for polio vaccination on national immunization days (NIDs) and, since 1999–2000, sub-NIDs for high risk areas. In 2000 the NIDs reached 153 million children.5 In 2001, ‘mop-up’ immunization was done to include left out children.

Of the 677 cases of confirmed wild polio that occurred all over the world in 2000, India alone contributed 265 cases (39%), with Uttar Pradesh accounting for 179 (68%) of the cases in India and 26% of the cases globally.6

While the coverage figures of NIDs and sub-NIDs are impressive, qualitative monitoring has indicated some poorly covered areas.7 Most of these areas are in Uttar Pradesh, with 38 of the 71 confirmed wild polio cases (53.5%) in 2001 occurring in 5 districts of western Uttar Pradesh (Moradabad, Badaun, Bijnor, Bareilly and Rampur). Therefore, we attempted to ascertain the reasons for their occurrence and the perceptions of the community.

METHODS

The study was conducted in August 2001 in 10 villages from the 5 high risk districts with confirmed polio cases in 2001. Five unaffected villages in the same districts were also included to assess the attitude of the community towards the polio eradication programme.

Ten children with confirmed wild polio isolation in 5 districts along with their families, neighbours, key persons in the village such as pradhans, teachers, postmen, and residents of neighbouring villages, healthcare providers and persons from other walks of life including some media personnel formed the study sample. On an average, two local healthcare providers (including traditional healers and practitioners of alternative medicine) were interviewed per village.

The confirmed cases were examined at their homes and a detailed developmental, medical and social history was taken. Clinical examination was done by 3 independent teams consisting of 4 medical professionals and 5 students of social work from the University of Delhi. The family members of the cases were interviewed regarding their perception of the disease and the reasons for its occurrence, the impact of the case on the family and their views on the polio eradication programme. Focus group discussions were carried out in homogeneous groups in the villages.

The views of local media personnel and healthcare providers about the polio programme, reasons for non-compliance and the constraints faced by the health department were ascertained by attending a press conference in Badaun. A ‘mop-up’ round in Moradabad was observed by one of the teams. Verbal informed consent was taken from each group before the study.

RESULTS

The characteristics of the 10 children with polio are shown in Table I. Five children each belonged to the Hindu and Muslim communities. Seven children had received 3–4 doses of oral polio vaccine (OPV) before being afflicted with polio. Six children had received at least one intramuscular injection preceding the paralytic attack. In three of them the injection had been given in the same leg which was subsequently affected. Two children died,
one due to severe diarrhoea and the other due to respiratory paralysis. The parents of the deceased children were unable to recall the site and number of injections received by their children.

Focus group discussions

With affected families. Except for one case, the parents of all the children were illiterate and had not had their children immunized with routine vaccines. Their awareness about polio and other waterborne diseases, personal hygiene, family planning and reproductive health was also poor. Most of the parents and family members were concerned about polio as it caused a permanent disability. The ‘feeling of guilt’ and ‘self blame’ was present in all the parents. However, one family looked on it as a means of receiving some monetary compensation. Some families believed that the illness was the ‘will of God’.

Three children had not received a single dose of OPV because of the family perception that (i) polio drops are adulterated; (ii) this is a ruse by the government to decrease the population; (iii) it may cause infertility; and (iv) it may cause some harm to their children. None of the families were aware of the mode of transmission of polio. Most parents wanted to immunize their children but were not convinced of the efficacy of OPV, as some children had developed polio despite immunization. A few families had changed their attitude towards immunization after their children had suffered from polio and had advised others to accept the immunization programme.

Parents expressed difficulty in meeting the financial burden of treatment for their affected children. Many still believed that polio was curable and most families had got prescriptions of indigenous medicine to ‘cure’ the disease. The parents of 4 polio-affected children had sought treatment from local mas- seurs. None of the parents were aware of the importance of physiotherapy and had not taken their child to a physiotherapist.

There was a consistent lack of faith in the government health system. Villagers were dissatisfied with the quality of care and the rude attitude of the healthcare providers. They felt that neither doctors nor drugs were available at health centres.

With affected communities. These revealed that people were aware of the pulse polio programme but considered it to be a regular monthly activity. Most people felt that the house-to-house rounds were good except in some villages in Moradabad and Bijnor, where the people complained that some children were missed by the vaccinators. Some educated villagers said that the house-to-house rounds had decreased the initiative among parents to get their children immunized from health centres. However, others held a contrary view. Intensification of immunization, especially the house-to-house rounds, had led certain sections of the community to question the motive of the government and strengthened their suspicion that the vaccine caused infertility. This belief was strengthened by their observation that vaccines of different colours (pink and yellow) were used in different areas. None of the groups admitted to being resistant to the idea of immunization, but most of them admitted that some people in their villages were resistant.

None of the groups were aware of the need for additional doses of OPV. Some felt that the government had intensified the immunization drive because of the increase in polio cases. Most villagers were not aware of the cause and mode of transmission of the poliovirus. They believed that polio could be cured by ‘polio doctors’ who were local quacks prescribing oil massage, exercise and herbal remedies for all kinds of paralysis. None of the groups were aware of the difference in acute flaccid paralysis and polio. The majority acknowledged that polio was a disabling disease.

Some people accepted that they had migrated to other states to get seasonal jobs, and therefore their children had missed the OPV doses during the ‘mop-up’ rounds.

With neighbouring villagers. The majority of people from neighbouring villages had a poor awareness about polio and the vaccination programme. Most believed that polio vaccination was a monthly programme though not all the areas were covered regularly. There was a general apathy among the villagers as ‘it was not their problem as there was no cases of polio’. They too accepted that resistance to polio vaccination was common among certain communities but none of them came forward to name these.

With private healthcare providers. All the local private practitioners were apprehensive about our study. They were happy with the health facilities and government healthcare providers. A majority of them expressed their support for the polio immunization drive and had volunteered for the work. Most of them said that all acute flaccid paralyses were due to polio and could be completely cured. Some practitioners said that they had cured a few polio cases in the past. They were neither aware of the correct schedule of the universal immunization programme (UIP) nor of the types of vaccines available. Some traditional healers said that OPV contained the ‘germs’ of hepatitis and AIDS. Some believed that OPV should not be given when the child was suffering from fever, diarrhoea, pneumonia, malaria, etc. Most of them said that there was resistance among the population in some areas due to the fear that OPV causes infertility. Their

Table 1. Clinical details of the ten wild polio cases

<table>
<thead>
<tr>
<th>Case number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<tbody>
<tr>
<td>Gender</td>
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<td>F</td>
<td>M</td>
<td>F</td>
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<td>F</td>
<td>M</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Age (in months) at examination</td>
<td>30</td>
<td>8</td>
<td>34</td>
<td>18</td>
<td>30</td>
<td>9</td>
<td>18</td>
<td>8</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Outcome</td>
<td>RP</td>
<td>RP</td>
<td>RP</td>
<td>RP</td>
<td>RP</td>
<td>Dead</td>
<td>RP</td>
<td>Recovered</td>
<td>RP</td>
<td>Dead</td>
</tr>
<tr>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
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<thead>
<tr>
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<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td></td>
<td>No Fever</td>
<td>Skin rash</td>
<td>Yes Fever</td>
<td>No nk</td>
<td>No nk</td>
<td>Yes Fever</td>
<td>No nk</td>
<td>Yes Fever</td>
<td>Yes nk</td>
<td></td>
</tr>
<tr>
<td>Interval to paralysis (in hours)</td>
<td>&lt;24</td>
<td>&lt;24</td>
<td>&lt;36</td>
<td>–</td>
<td>–</td>
<td>&lt;6</td>
<td>–</td>
<td>nk</td>
<td>nk</td>
<td></td>
</tr>
<tr>
<td>OPV doses received before illness</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

All the parents were illiterate except for the father of case 2. RP residual paralysis nk not known
knowledge about the vaccine vial monitor (VVM) was poor. The majority of them were giving intramuscular injections for almost all febrile conditions.

With government doctors. Most believed that a particular religious community had created hurdles in the success of the programme. They expressed their ‘boredom and exhaustion’ with the frequent polio immunization drives. They blamed the programme for decreasing the coverage of vaccines under the UIP. They had many grievances including understaffing, overwork, poor salaries, lack of facilities, lack of stationery, etc. Only a few were aware of the implications of the immunization programme. Some workers stated that they were facing resistance from families, particularly older members, who were hiding children on rooftops and behind bushes in their farms during the house-to-house rounds.

With local journalists. At Badaun, one investigation team got an opportunity to attend a press conference organized by a district health officer 2 days before the next ‘mop-up’ round. Many journalists were concerned about the repeated ‘mop-up’ rounds and the bad performance of the state. None of the journalists was convinced about the success of the programme. They had poor knowledge about the concept of immunization and had little faith in the government’s policy and programme and quality of services, including the quality of the polio vaccine.

Some journalists stated that they had seen some auxiliary nurse midwives (ANMs) and vaccinators giving OPV in the sun. Their main apprehension was that the repeated doses ‘were not providing the desired outcomes’. They were also aware of the rumour of OPV causing infertility. One of them stated that certain groups had distributed pamphlets directing people not to immunize their children with OPV as it may be harmful. Some said that there was a newly emerging resistance among the local communities because of the prolonged pulse polio programme. They said that the repeated doses had raised fears of overdosing among the educated and previously compliant sections of society. Most journalists suggested that the programme required closer monitoring by the WHO and Unicef and should be time-bound; all vials used in the intensified pulse polio programme and ‘mop-up’ rounds should be returned to prevent the misuse of vials.

Observations during the ‘mop-up’ round
One of the teams got the opportunity to evaluate the first 2 days of a ‘mop-up’ round in Moradabad. It found the vaccinator teams to be rude, irritated with resistant families and working without micro-planning. Some women ran away with their children to the farms to avoid giving them OPV. One of the team members tried to persuade an old lady who reacted violently. The vaccine coverage was poor.

DISCUSSION
The incidence of wild polio cases has decreased, but the recent rising trend in some states is disturbing. Some of the important issues that need consideration in the polio strategy in India, particularly in Uttar Pradesh, have been brought out by our study. Seven of the 10 cases studied received intramuscular injections for fever or pustular skin rash, which could have been treated with oral medications. Five of them were injected less than 24 hours before the onset of paralysis. Wyatt et al., Gujral et al., and Mahadevan et al. have shown that intramuscular injections during minor febrile illness increase the risk of paralytic polio. Wyatt et al. describe this phenomenon as ‘aggravation’. Such injections may have contributed to the severity of the paralysis in these children. Injection therapy is popular and widespread in India and more than 50% of all injections used are unsafe and given by untrained healthcare workers. Unless local practitioners are trained in the appropriate management of febrile illnesses, this practice may be difficult to curb.

None of the polio cases received physiotherapy. This could be because of parental illiteracy and limited access to physiotherapy services in peripheral areas. Some workers have shown good results with community-oriented physical therapy given by multipurpose rehabilitation technicians. Polio programme managers must undertake similar rehabilitative activities for polio-affected children and not concentrate only on immunization coverage.

The majority of affected children had received 4 or more doses of OPV before the attack. Despite multiple doses, the occurrence of polio is of concern. This could be due to the circulation of a heavy load of wild polio, use of a less potent vaccine or failure to maintain the cold chain. Wyatt has shown that low potency of OPV may be responsible for this phenomenon. OPV may lose its potency if it is not appropriately stored, transported and delivered in the field. Some media personnel and local villagers reported that administration of OPV was carried out in the sun in some areas and opened vials were not returned. The ‘booth approach’ was adopted in some areas for ‘mop-up’ rounds to avoid house-to-house activities. Although the authenticity of these statements could not be established, the reports were consistent with those from other villages. Another contributing factor could be the poor nutrition and immune status of these children. The risk of vaccine-associated paralytic polio (VAPP) is lower in India than in other countries. However, it is one of the major concerns as wild polio cases have reduced considerably due to the intensified administration of OPV. Therefore, there is a need to develop a highly sensitive surveillance system. At the same time, intensive efforts are required to overcome resistance towards immunization in certain communities.

The other important hurdles to the success of the polio programme include the quality of immunization and maintenance of the cold chain. Despite claims of near-complete coverage by government officials, there is widespread resistance in the area, indicating that many children would have been left out during the polio rounds. The fear that OPV drops can cause infertility and that the immunization drive is a means for the government to reduce the population has gradually percolated to many areas of Uttar Pradesh, especially among the Muslims and backward castes. However, many of those who had resisted vaccination were angry with the rude and coercive behaviour of the vaccinators. Efforts to involve local religious leaders to counter the resistance through social mobilizers and other government officials needs to be strengthened along with confidence-building measures at the state and national levels.

Journalists have a role in disseminating correct information on polio so that fears and misconceptions pertaining to the disease and OPV are removed. Such an effort can have a synergistic effect on the ongoing programme.

There is a wide gap in knowledge, attitude and practices in the study area. It is unfortunate that instead of improvement in polio immunization, surveillance and vitamin A supplementation, there is a marked decrease in the coverage of the national immunization programme. Diversion of all resources, particularly manpower, to the pulse polio programme could be a reason for the decrease in routine immunization. Therefore, newborns who are not covered may become susceptible to polio till the vaccine virus...
replaces the wild poliovirus. Since many government officials complained about interference with routine work due to the frequent polio rounds, this needs to be addressed.

The lack of confidence in government health services was uniform in all the districts. The government must involve local leaders, pressure groups and health volunteers to spread the correct message among the public and motivate them to accept the programme. The beliefs of the people need to be understood and appropriate strategies must be adopted to counter them.

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