

Title: INVESTIGATION OF AN OUTBREAK OF HUMAN RABIES IN MANIPUR

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Keywords Rabies, Investigation, Outbreak, India

Abstract An outbreak of human rabies was investigated during April - May 2006. Manipur is a hilly state in the North east of India having 9 districts with population of 23,88,634. The current outbreak of human rabies affected the 4 districts viz. Imphal East, Imphal West, Thoubai and Bishnupur situated in the valley.

Original Article

Investigation of an outbreak of human rabies in Manipur

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ABSTRACT

An outbreak of human rabies in Manipur was investigated during April - May, 2006. Manipur is a hilly state in the North East of India having 09 Districts with a population of 23, 88,634. The current outbreak of human rabies affected the 4 districts viz. Imphal East, Imphal West, Thoubal & Bishnupur situated in the valley. 28 (96.5%) human rabies deaths occurred from these 4 districts during January - May, 2006. The majority of cases were admitted to RIMS hospital in Imphal. 28 (96.5 %) cases occurred following dog bites and none had received complete post exposure prophylaxis. Large number of unvaccinated canine population, not providing post exposure prophylaxis & lack of awareness about rabies prevention among general public were responsible for this outbreak. Following this outbreak, Government of Manipur initiated mass vaccination of dogs in all the districts and supplied human rabies vaccines to government hospitals across the state.

To prevent rabies outbreaks in future, there is a need to create awareness on rabies prevention among people and professionals, supplying sufficient quantities of modern rabies vaccines & RIG to all the government hospitals, and establishing rabies diagnostic laboratory. Adopting dog population control measures with regular mass vaccination of dogs would go a long way in prevention and control of rabies both in man and dogs.

Key words: Rabies, Investigation, Outbreak, India

Introduction:

Rabies continues to be endemic in main land of India accounting to 20,000 human rabies deaths & 17.4 million animal bites annually. Dog is responsible for transmission of rabies in about 96 % of cases. India has an estimated 25 million pet dog population.¹ Outbreak of rabies in man is known to occur in areas with very low level of canine vaccination & non availability of rabies immunobiologicals.

Manipur is a hilly state in the North East of India with 9 Districts, and has 22,327 Sq Kms of area with a human population of 23,88,634 (2001 Census). Manipur shares its boundary with Nagaland on North, Assam on North West, Mizoram on south west and Myanmar on south & southeast. The hilly region surrounding the Manipur valley has forests having wide variety of flora and fauna. The capital city of Manipur, Imphal has Regional Institute of Medical Sciences (RIMS) which is a tertiary referral hospital in North East of India.

An outbreak of human rabies in Manipur was extensively covered by mass media during the third week of March, 2006. In this context, the members of

Association for Prevention and Control of Rabies in India (APCRI) carried out an investigation of this outbreak of rabies in the state of Manipur.

Material & Methods:

The information of an outbreak of human rabies was provided by a member of APCRI in Manipur. Following this a field investigation of the outbreak was done during April - May, 2006. The investigating team collected the relevant information visiting the following places viz. Directorate of Health services, Directorate of Veterinary services, State Veterinary Hospital, District Health Office - Thoubal District, District hospital, Thoubal, Imphal Municipal Health Council, JN Hospital, Imphal.

The investigating team also visited Isolation ward of Regional Institute of Medical Sciences (RIMS) hospital, a tertiary care hospital and collected information on admissions of human rabies in the last decade (1995-2006) (Table-1). The study team during the visit to RIMS hospital obtained information on rabies exposures from attendants of two hydrophobia cases admitted. The information on availability of anti rabies vaccines & immunoglobulin from RIMS

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Table 1
No. of Human Rabies cases admitted to Isolation ward, RIMS Hospital, Imphal during the last 10 years

| Year | No. of Human Rabies Cases |
|--------------------|---------------------------|
| 1995 | 06 |
| 1996 | 02 |
| 1997 | 00 |
| 1998 | 00 |
| 1999 | 00 |
| 2000 | 02 |
| 2001 | 07 |
| 2002 | 03 |
| 2003 | 03 |
| 2004 | 05 |
| 2005 | 10 |
| 2006 (upto May 30) | 29 |

Source: RIMS Hospital, Imphal

Hospital pharmacy & Private pharmacies outside the hospital was collected. The study team visited families of ten victims in affected districts and collected details about exposures & treatments taken.

An educational programme on 'Rabies prevention' for both medical & veterinary professionals was also conducted.

Results & Discussion:

This was the first known outbreak of human rabies in the state of Manipur with 29 deaths occurring in the first 5 months of year 2006 itself when compared to previous years. 28 (96.5 %) out of 29 human rabies cases occurred from 4 districts viz. Imphal East, Imphal West, Thoubal & Bishnupur situated in the valley and one case belonged to District, Senapathi which is very far from valley and may not be part of this outbreak (Table 2). Using the addresses of these cases, spot mapping was done which showed clustering of cases in the 4 districts in the valley (Fig 1). 10 (34.5 %) human rabies cases belonged to Imphal East, 9 (31%) from Thoubal, 7 (24.1%) from Imphal West & 2 (6.9%) from Bishnupur. All the cases were diagnosed as human rabies based on clinico-epidmiological findings and none were confirmed by any laboratory method, which is a common practice in the absence of rabies diagnostic laboratory & this is similar to finding in other studies^{1,2}.

Out of 29 human rabies cases 18 (62.1%) were males, ages ranging from 3.5 to 80 years (mean age 35.3 Yrs); 11 (37.9 %) were females; ages ranging

Table 2
District wise distribution of Human rabies cases (up to May 30th, 2006)

| Districts | Population | No of human rabies deaths |
|----------------------|------------------|---------------------------|
| Imphal West (Valley) | 4,39,532 | 07 |
| Imphal East (Valley) | 3,93,780 | 10 |
| Senapathi | 3,79,214 | 01 |
| Thoubal (Valley) | 3,66,341 | 09 |
| Churchandapur | 2,28,707 | 00 |
| Bishnupur (Valley) | 2,05,907 | 02 |
| Ukhrlul | 1,40,946 | 00 |
| Chandel | 1,22,714 | 00 |
| Tamenglong | 1,11,493 | 00 |
| Total | 23,88,634 | 29 |

Source: RIMS Hospital, Imphal

from 7 to 62 years (mean age of 36.5 Yrs). Majority 20 (69%) of victims were adults. 13 (44.8 %) human rabies cases died at Isolation ward of RIMS Hospital, Imphal, 12 (41.4 %) left against medical advice (LAMA) and 4 (13.8%) didn't visit any hospital and died at their residence. None of these victims had taken complete post exposure prophylaxis. Before the outbreak, anti rabies vaccines & RIG were not available in the government hospitals, but few doses of anti rabies vaccines were available in private pharmacies only. Rabies Immunoglobulin was not avail-

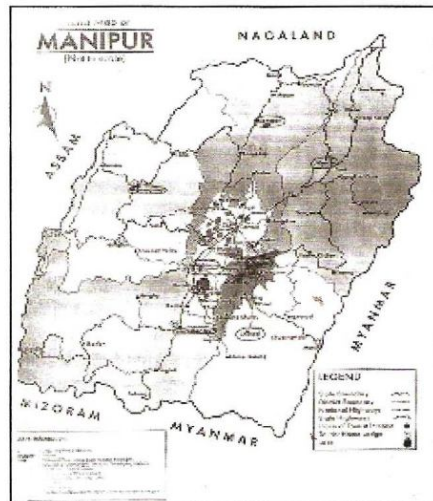


Fig 1: Spot mapping of human rabies cases in 5 districts of Manipur
Note: Each Black dot represents one human rabies case.

able in any of the pharmacies. After newspaper reports of this outbreak of rabies, there was an increase in animal bite cases reporting at the RIMS Hospital, JN Hospital & also to private practitioners resulting in a great demand for ARV & RIG which were subsequently made available in the state. There was a very low level of awareness on 'rabies prevention' amongst victim's families. Educational programmes on rabies prevention were conducted for both medical & veterinary professionals in the affected districts.

The number of dog brain samples submitted for diagnosis of rabies at Diseases Investigating Laboratory, Department of Veterinary and Animal Health, Imphal increased from last quarter of 2005 (Table -3). During 2005-06, Rabies was confirmed in all 39 (100%) brain samples submitted which was a 3 fold increase compared to previous years. 38 (97.5%) canine & one (2.5%) feline brain sample were tested positive by fluorescent antibody test (FAT) done at Central Research Institute (CRI) Kasuali, Himachal Pradesh. Out of 39 brain samples, 17 (43.6%) submitted during Jan-March, 2006 were tested positive indicating large number of canines being infected with rabies virus. However, there would have been more canine rabies cases unreported during this period as seen even in other studies.³

Table 3
Confirmed canine rabies cases in Manipur during the last 5 years (April 2001 – March 2006)

| Year | No. of samples tested | No. of confirmed* rabies cases |
|-----------|-----------------------|--------------------------------|
| 2001-02 | 04 | 03 (75.0) |
| 2002-03 | 11 | 07 (63.6) |
| 2003-04 | 09 | 07 (77.8) |
| 2004-05 | 11 | 09 (81.8) |
| 2005-06** | 39 | 39 (100.0) |

Source: Disease Investigation Laboratory, Department of Veterinary and Animal Health, Govt. of Manipur

Note: Figures in parenthesis indicate percentage.

* Confirmation of rabies done by FAT at CRI, Kasuali, Himachal Pradesh.

** Jan-March 2006=17 positive cases (including one cat)

There was an estimated 1.3 lakhs dogs in Manipur before the outbreak (Live stock census 2003). Majority of the dogs were strays, and no mass rabies vaccination was carried out since 1997, but few pet dogs in the urban areas were immunized against rabies by private veterinarians. This resulted in large number of canine population infected with rabies and respon-

sible for the outbreak which is similar to finding in other studies.⁴ Due to the fear of rabies, there was mass killing of the dogs by the people in the state during the outbreak. However, the Department of Veterinary & Animal Health started the mass vaccination of dogs after reports appeared in mass media and about 38,556 dogs & cats were immunized in all districts of Manipur. Private veterinary practitioners & NGOs were also involved in immunization of dogs & cats.

Conclusions:

The outbreak of human rabies in the 4 districts of Manipur with 29 deaths was due to very low level of rabies vaccination coverage in canine population & not providing post exposure prophylaxis for animal bite victims.

Recommendation:

There is a need to create awareness about rabies, animal bite management among people & professionals. Sufficient quantities of modern rabies vaccines & RIG should be made available in all government hospitals. There is an urgent need to establish & strengthen rabies diagnostic laboratory. Adopting dog population control measures with mass vaccination of dogs with regular annual booster vaccination need to be followed. These measures if adopted will prevent any future outbreaks of rabies.

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