

Title: EPIDEMIOLOGICAL PROFILE OF RABIED CASES IN AND AROUND DELHI

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Abstract The study was conducted with the aim of knowing the nature and magnitude of the problem of Rabies in Delhi and its surrounding states by analysis of the records of hydrophobia cases admitted to the MVID Hospital, Delhi during 2008 to 2017.

AN OVERVIEW OF THE CHANGES IN THE RABIES SCENARIO OF INDIA IN THE LAST THREE DECADES

In the Last Three Decades very significant changes in the Rabies Scenario of India has taken place.

The most significant changes in the last three decades are as follows:-

- 1) **There has been a great increase in the availability of many high quality anti-rabies vaccines, rabies immunoglobulins and rabies monoclonal antibodies.**
- 2) **The number of patients seeking Rabies PEP, timely.**
- 3) **The number of centers offering proper Rabies PEP, even in remote parts of the country has increased many folds.**
- 4) **There has been a marked reduction in the number of Rabies cases.**

In the beginning of 1987 only Semple Vaccine was used in the Govt. Hospitals and clinics. Anti- Rabies Serum was used at the ARC of CRI Kasauli, and similar places only. Only one TCV called MIRV [HDCV] was available in very few places. Most GPs, to whom, most people approach for remedies to their medical problems, did not treat the animal bite victims. They used to refer them to the Govt. ARCs, some very far away. Now, after 30 years there are 12 brands of modern anti-rabies vaccines available to the clinicians for managing animal bite cases. There are 2 brands of HRIG, 3 brands of ERIG and One brand of R-Mabs available for passive immunization. Many GPs are treating animal bite cases very confidently and correctly. Some are using R-Mabs, HRIG, and ERIG where applicable. This change in the approach in managing animal bite cases among GPs was due to the innumerable CMEs organized throughout the country. These CMEs were successful in changing the approach to animal bite cases among GPs. The resource persons or the speakers in these CMEs were mostly APCRI members. The CMEs were mostly sponsored by different corporate houses marketing different brands of Rabies vaccines and immunoglobulins.

From 2003 to 2005 there was an ICMR study evaluating the TCVs produced in India against a TCV pre-approved for IDRV by WHO and manufactured outside India [Verorab], This study was done under a directive from the Drugs Controller General of India [DCGI] prior to giving its approval for use of IDRV in India..

In 2005, a very significant change took place. It was the total stoppage of the use of Semple Vaccine [NTV] in the Govt. Hospitals and ARCs. It was replaced by TCVs used in Essen Schedule. There were vaccine shortages in many centers.

In 2006, the Drugs Controller General of India [DCGI] allowed the use of IDRV in selected clinics fulfilling certain criteria.

From 2006 onwards IDRV was started in Govt. Hospitals and Clinics. Now more than half of the total number of States and Union Territories use IDRV in their Hospitals and ARCs. There is no vaccine shortage in those places where IDRV was used. This is due to the fact that the cost of a full course of PEP is much less, and with the same amount of vaccine many more persons can be vaccinated.

Formation of APCRI: There was no professional association to help those doctors who worked at the ARCs. On 17th April, 1998 the Association for Prevention and Control of Rabies in India was born with the objective of having a Scientific and Professional platform to focus on Rabies and its Control. Annual Conferences on Rabies and its Control began to be organized every year from 25th July, 1999 onwards.

APCRI Journal was first published on 25th July, 1999 and was published once a year from 1999 to 2006. From 2006 till now it is published twice a year. This journal has increased the knowledge base of everyone interested in Rabies Control.

In 2003 - 2004 the WHO-APCRI national multicentric survey to assess the burden of rabies in India was carried out.

APCRI was mainly instrumental in stopping the use of Semple Vaccine [NTV] and introduction of IDRV in Govt. Hospitals and ARCs. This has resulted in much better access to modern PEP to the people of India.

Incidence of Rabies in India: About 30 years ago the Govt. of India Reported the Mortality from Rabies to be 25000. This figure finds its place in the Training Manual on Rabies from the National Institute of Communicable Diseases, Delhi, of 1987. In 1996, the official figure from NICD was 30,000.

In 2003 the WHO-APCRI national multi-centric survey to assess the burden of rabies in India was carried out. The report of this survey was published in 2004. The mortality from Rabies in India was reported to be 20565. This is the last and only methodical work on this issue till now.

There is a great need of knowing the real incidence of Rabies in Humans, Dogs and other animals. Various types of data not tallying with one another, generated by various agencies of Govt. and NGOs are available. It is very confusing.

Dog bite is the primary source of human rabies. There is no surveillance system for animal rabies. As a result, the impact of rabies in livestock is unknown. Dog rabies control and dog population management are being neglected. There has not been much progress in this sector in the last three decades. Without control of the disease in the Animal Vector it will be very difficult to make India Rabies Free by 2030.

EPIDEMIOLOGICAL PROFILE OF RABIES CASES IN AND AROUND DELHI

Hemant Kumar Gohil

ABSTRACT:

The study was conducted with the aim of knowing the nature and magnitude of the problem of Rabies in Delhi & its surrounding states by analysis of the records of hydrophobia cases admitted to the MVID Hospital, Delhi during the years 2008 to 2017. Out of 763 cases 233, (30.5%) of the hydrophobia cases belonged to Delhi and 530 (69.5%) cases came from other states. The overall situation of human Rabies has not changed over the past 10 years. One third (35.4%) of cases were children below 15 years of age. Incidence was higher in males than female (4:1). Cases occurred round the year. History of dog bite was present in 93.8% cases and other animals' involvement was 2.5%. In 3.7% of cases no definite history of animal bite was given. About 2% (17/763) of cases gave history of dog being alive for more than 10 days after the incident. Most of the cases (45%) were bitten on lower limb and about 15% cases on head & face. About 57% of the cases developed symptoms between 1 to 3 months after the exposure. Out of 763 cases, 3 cases developed symptom in less than 5 days and 4 cases more than 10 years after the exposure. Post exposure treatment history was, present in about 30% of cases. 2.9% of cases had taken Vaccine & RIGs. 29.4% had taken only vaccine and 67.8% cases had not taken any treatment after exposures. In 10% of cases history of wound management was present.

Keywords: Rabies Cases, Hydrophobia, Delhi.

INTRODUCTION

M.V.I.D. Hospital is the only specialized 227 bedded hospital for Infectious Diseases in whole National Capital Region (NCR) providing the management and isolation facilities of Rabies patients. The patients are referred to this hospital from all hospitals of Delhi and from neighboring states like Uttar Pradesh, Haryana, Uttarakhand etc.

The clinical record sheet of cases admitted to the MVID Hospital, Delhi from 2008 to 2017 were analyzed to know the epidemiology of Rabies in Delhi NCR and also the preventive and control measure of Rabies in Delhi. An average of 80 to 100 cases of fatal human rabies reported every year and were admitted at MVID Hospital Delhi. The overall situation of human Rabies has not changed over the past 10 years. Dogs mainly transmit rabies in Delhi (93.8%). The other animals that are involved in the transmission to Rabies include monkey, cat, mongoose, Jackal & wild animals.

MATERIAL AND METHODS

All clinically diagnosed hydrophobia cases in Delhi & neighboring states are referred to and managed at the MVID Hospital, Delhi. The study was conducted based on the clinical records of hydrophobia cases admitted to the MVIDH, Delhi in the years 2008-2017. The data on age, sex, date of admission, address, occupation, presenting complaints, duration of illness, animal species involved and interval between animal bite and appearance of symptoms, Exact site of bite, details of wound, treatment of wound, whether dog was rabid, whether biting animal died, untraceable, killed; whether

treatment of the wound was done, details of Post exposure treatment, number of injections, date of last injection, any other person bitten by the same dog with result. A case was considered having received local wound treatment if the wound was washed with soap and water or water alone.

RESULTS

The clinically diagnosis of hydrophobia cases admitted to MVIDH, Delhi during 2008 to 2017 reveals that the disease was endemic throughout. (Table -1).

Table - 1

Year wise distribution of Rabies Cases

Year	No. of Rabies cases
2008	117
2009	77
2010	72
2011	62
2012	60
2013	62
2014	98
2015	68
2016	46
2017	101
Total	763

The record analyzed for the period 2008 to 2017 reveals that a total of 763 cases of hydrophobia were admitted to the MVIDH, Delhi and the number of cases occurred throughout the year. Out of 763 cases, 233 belonged to Delhi (30.5%) and the remaining came from other states. 312 cases reported from Uttar Pradesh (40.9%).

Table - 2
State wise distribution of Rabies Cases

State	No. of Rabies Cases	Percentage
Delhi	233	30.5 %
Uttar Pradesh	312	40.9 %
Haryana	170	22.3 %
Uttarakhand	30	3.9 %
Madhya Pradesh	7	0.9 %
Bihar	7	0.9 %
Rajasthan	2	0.3 %
West Bengal	1	0.1 %
Maharashtra	1	0.1 %
Total	763	100 %

It is seen that one third of cases were children below 15 years of age. (Table 3). Children are at high risk owing to their short height, curiosity regarding animals, poor reporting, and shorter incubation period. The incidence was found higher in male than female (4:1). (Table 4).

Table - 3
Age wise distribution of Rabies patients

Age group	No. of Rabies Cases	Percentage
Up to 5 years	71	9.3 %
6 years - 10 years	125	16.4 %
11 years - 15 years	74	9.7 %
16 years - 20 years	50	6.6 %
21 years - 25 years	53	6.9 %
26 years - 30 years	61	8.0 %
31 years - 35 years	55	7.2 %
36 years - 40 years	48	6.3 %
41 years - 45 years	47	6.2 %
46 years - 50 years	49	6.4 %
51 years - 55 years	43	5.6 %
56 years - 60 years	26	3.4 %
61 years - 65 years	31	4.1 %
66 years - 70 years	18	2.4 %
71 years - 75 years	6	0.8 %
76 years - 80 years	6	0.8 %
TOTAL	763	100 %

Table - 4
Sex wise distribution of Rabies Patients

Sex	No. of Rabies Cases	Percentage
Male	624	82 %
Female	139	18 %
Total	763	100 %

45.3 % (346) cases were bitten on lower limb and 32.8 % (250) were bitten on upper limb. 14.5% (111) were bitten on face, head or neck. 42 (5.5%) patients had not given any history of bite. (Table 5).

Table - 5
Site of Bite

Site of Bite	No. of Rabies Cases	Percentage
Head / Neck / Face	111	14.5 %
Chest	9	1.2 %
Abdomen	3	0.4 %
Back	1	0.1 %
Genital	1	0.1 %
Upper limb	250	32.8 %
Lower limb	346	45.3 %
No H/O bite	42	5.5 %
Total	763	100.0 %

Out of 763 cases 716 (93.8%) cases were bitten by dog, 7 cases were bitten by Jackal, 5 cases by monkey, 2 cases each by mongoose & cat, 1 case by Hyena, Fox and Wild animal. In 28 cases no definite history of animal bite was presented. (Table 6).

Table - 6
Source of Exposure

Biting Animals	No. of Rabies Cases	Percentage
Dog	716	93.8 %
Jackal	7	0.9 %
Monkey	5	0.7 %
Cat	2	0.3 %
Mongoose	2	0.3 %
Hyena	1	0.1 %
Wild Animal	1	0.1 %
Fox	1	0.1 %
No H/O animal bite	28	3.7 %
TOTAL	763	100.0 %

The duration between exposure and development of symptoms reported in the case sheet ranged from 04 days to 18 years. Out of 763 cases, 436 (57.1%) cases developed symptom between 1 to 3 months. 28 (3.7%) cases did not give any History of Bite. (Table 7).

Table - 7
Incubation period of Rabies cases

Period	No. of Rabies Cases	Percentage
Up to 5 days	3	0.4 %
6 - 10 days	7	0.9 %
11 days to 15 days	47	6.2 %
16 days to 30 days	84	11.0 %
> 1 month to 3 months	436	57.1 %
> 3 months to 6 months	108	14.2 %
> 6 months to 1 year	24	3.1 %
> 1 year to 3 years	15	2.0 %
> 3 years to 5 years	5	0.7 %
> 5 years to 10 years	2	0.3 %
> 10 years	4	0.5 %
Not known	28	3.7 %
Total	763	100 %

Out of 763 cases, 491 (64.4%) animals were untraced. 113 died, 91 killed, 17 alive (as mentioned in the case sheet) and in 51 cases, the fate of animals was not known. (Table 8)

Table - 8
Fate of the Animal

Animal history	No. of Rabies Cases	Percentage
Untraced	491	64.4 %
Died	113	14.8 %
Killed	91	11.9 %
Alive	17	2.2 %
Not known	51	6.7 %
TOTAL	763	100.0 %

Out of 763 Rabies cases, 164 (21%) cases expired in hospital and 581 (76%) left against medical advice (LAMA). 18 (2%) cases discharged from hospital after Rabies ruled out (R/O). (Table 9)

Table - 9
Fate of the Admitted Cases

Fate of Patient	No. of Rabies Cases	Percentage
Hospital Death	164	21 %
LAMA	581	76 %
Discharged after R/O Rabies	18	2 %
Total	763	100 %

Out of 763 cases, 517 (67.8%) were never vaccinated while remaining 246 (32.2%) had taken post exposure

treatment. Out of those vaccinated 22 (2.9%) cases were administered Rabies immunoglobulin and 224 (29.4%) without RIG. 19 cases had taken 3 or more vaccines with RIG and 180 cases had taken 3 or more vaccines without RIGs. Wound management present after exposure in 78 (10.2%) cases. (Table 10, 11, 12).

Table - 10
Treatment history after Exposure

Treatment history	No. of Rabies Cases	Percentage
ARV WITH RIG	22	2.9 %
ARV WITHOUT RIG	224	29.4 %
No H/O treatment	517	67.8 %
	763	100.0 %
H/O wound management		
present	78	10.2 %
No H/O wound management	685	89.8 %
TOTAL	763	100.0 %

Table - 11
NUMBER OF ARV DOSES TAKEN ALONG WITH RIG

ARV + RIG (22 CASES)	No. of Rabies Cases	Percentage
1 dose ARV + RIG	3	0.4 %
2 dose ARV + RIG	0	0.0 %
3 dose ARV + RIG	7	0.9 %
4 dose ARV + RIG	10	1.3 %
5 dose ARV + RIG	2	0.3 %
Total	22	2.9 %

Table - 12
NUMBER OF ARV DOSES TAKEN WITHOUT RIG

ARV without RIG (224 cases)	No. of Rabies Cases	Percentage
1 dose ARV	44	5.8 %
2 dose ARV	33	4.3 %
3 dose ARV	85	11.1 %
4 dose ARV	44	5.8 %
5 dose ARV	18	2.4 %
Total	224	29.4 %

DISCUSSION

Human rabies continues to be an endemic disease in Delhi & its, neighboring states as per reported cases at MVID Hospitals, Delhi. The prevalence of the disease appears to be constant without any obvious trend of either gross increase or decrease in numbers. About 80% patients left hospital against medical advice, presumably after learning that there is no cure for the disease and number of cases occurred throughout the year. Out of 763 cases, 233 belonged to Delhi (30.5%) and the remaining came from other states. One third of

cases were children below 15 years of age. Children were at high risk owing to their short height, and curiosity regarding animals, poor reporting, and shorter incubation period. The incidence was found higher in male than female (4:1). The lower limbs (45.3%) were the main site of bite, followed by bites to upper limbs (32.8%), and 14.5% were bitten on head or face or neck. Dog bites were mainly responsible (93.8%) and the majority of these were by stray dogs. 2 cases gave history of playing with dog but no H/O dog bite. 491 (64.4%) animals were untraced. The remaining deaths were bitten by Jackal, monkey, mongoose, cat, other Wild animals. The duration between exposure and development of symptoms reported in the case sheet ranged from 4 days to 18 years. 57% cases developed symptom between 1 to 3 months after the exposure. There was no laboratory confirmation of the disease in any case. However, rabies cases present with clear clinical history of hydrophobia that is not found in any other disease, 68% were never vaccinated while remaining 32% had taken post exposure treatment. Out of those vaccinated, 3% cases were administered Rabies immunoglobulin and 29% without RIG. 19 cases had taken 3 or more vaccines with RIG and 180 cases had taken 3 or more vaccines without RIGs. Two cases were injected at the gluteal region. Proper Wound management present after exposure was done in 10% cases. Pre-exposure vaccination can be used to protect the children. Why importance is not given to a pre-exposure vaccination against 100% fatal disease is of great concern. The cost of three modern tissue culture vaccine is about Rs. 100/- (for Pre-exposure ID injection: 0.1 ml at deltoid on day 0, 7 & 28), we could to a large extent control a highly endemic disease in our country.

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