
Short Communication

A retrospective epidemiological study of human rabies cases admitted in Sir Ronald Ross Institute of Tropical and Communicable Diseases

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Summary:

Rabies is one of the deadliest diseases known to man; it remains a neglected zoonotic disease throughout the developing countries. Rabies is an acute condition, 100% fatal and it is transmitted to humans through animal bites especially dog bites. Pre-exposure rabies prophylaxis is administered for several reasons. First, although pre-exposure vaccination does not eliminate the need for additional medical evaluation after a rabies exposure, it simplifies management by eliminating the need for RIG and decreasing the number of doses of vaccine needed. It can be controlled by taking post exposure prophylaxis following animal bites. The objective of study was to estimate the burden of rabies in Telangana state and to know the epidemiological trends of rabies. Retrospective analysis of human rabies cases admitted in Sir Ronald Ross Institute of Tropical and Communicable Diseases, Hyderabad during a period of five years from January 2010 to December 2014. Average number of rabies cases admitted in our hospital is 22.4 cases per year. . Adult men of age group 41-60 years were most commonly affected and elderly people of age group >60 years were affected least. Hydrophobia was the predominant feature of human rabies. Mostly people living in rural areas who have not taken the vaccine after the dog bite were affected. It was concluded that as the disease is incurable it is important to focus on health education to increase the awareness in the community about pre-exposure prophylaxis for high risk groups and post-exposure prophylaxis after dog bite.

Key words: human rabies, dog bite, hydrophobia, post exposure vaccination.

INTRODUCTION:

Rabies is a rapidly progressive, acute infectious zoonotic disease of the central nervous system caused by RNA viruses in the Family Rhabdoviridae, Genus Lyssavirus. Virus is typically present in the saliva of clinically ill mammals and is transmitted through a bite, most commonly dog bites. After entering the central nervous system of the next host, the virus causes an acute, progressive encephalomyelitis that is almost always fatal. The incubation period in humans is usually several weeks to months, but ranges from days to years¹⁻⁴.

Recently there is an increase in the number of dog bite cases attending emergency outpatient department of Sir Ronald Ross Institute of Tropical and Communicable Diseases (SRRITCD), which is a tertiary care hospital for human rabies cases. It can be stated that all the human rabies cases from Hyderabad and surrounding districts were generally admitted in this hospital. This study was conducted to know the epidemiology of rabies cases admitted in our hospital and to know the burden of rabies in Telangana state.

MATERIAL AND METHODS

Type of study: retrospective study

Study duration: five years period, from January 2010 to December 2014

Place of study: Sir Ronald Ross Institute of Tropical and Communicable diseases (Government fever hospital), Nallakunta, Hyderabad, Telangana state.

Methodology: Hospital data of all the human rabies cases admitted in SRRITCD from January 2010 to December 2014 were obtained from medical record section and analyzed.

Data entry and analysis: data was entered in Microsoft excel sheet and analyzed.

RESULTS:

One hundred twelve human rabies cases were admitted in SRRITCD from Jan 2010 to Dec 2014. Table 1 shows the admissions per year.

Table 1: Human rabies cases admitted at SRRITCD from 2010 to 2014.

Year	Number of human rabies cases admitted
2010	24
2011	32
2012	20
2013	21
2014	15
Total	112

Average number of rabies cases admitted was 22.4 cases per year

Table 2: Sex and Age wise distribution of human rabies cases

Variable		Number of cases	Percentage
Sex	Male	82	73.22
	Female	30	26.28
Age group	Children (< 10 years)	26	23.22
	Adolescents (10-19 years)	19	16.96
	Young adults (20-40 years)	26	23.22
	Adults (41-60 years)	34	30.35
	Elderly (> 60 years)	07	6.25
Total		112	100

Males were more affected. Adults of age group 41 to 60 years were most affected and elderly population were least affected. Out of 112 cases of rabies only 18 cases were from Hyderabad and rest belonged to adjoining districts like Mehaboobnagar (24), Rangareddy (19), Medak (12), Nalgonda (7), Khammam (6), Nizambad (6), Warangal (5), Karimnagar (4), Adilabad (1) Andhra Pradesh (5) and other States (5). The majority of human rabies cases were due to dog bites. Biting animals involved were dog (92.8%), cat (1.78%), wolf (0.89%), mongoose (0.89%) and no history of animal bite (3.57%).

Table 3: Distribution of human rabies cases according to vaccination status

Post exposure vaccination status	Number	Percentage
Not taken anti-rabies vaccine and immunoglobulin	91	81.25
Incomplete vaccination without immunoglobulin	18	16.07
Complete vaccination without immunoglobulin	02	1.79
Incomplete vaccination with immunoglobulin	01	0.89
Complete vaccination with immunoglobulin	00	00
Total	112	100

Majority of the cases were unimmunized.

DISCUSSION:

The incidence of animal bites in India is 17.4 per 1000 population. A person is bitten every 2 seconds, and someone dies from rabies every 30 minute.⁵ The latest figure projected from the National Multi-centric Rabies Survey, conducted in 2004 by the Association for Prevention and Control of Rabies in India in collaboration with the World Health Organization is 20,565 deaths from rabies per year.⁶ One hundred twelve human rabies cases were admitted in SRRITCD from Jan 2010 to Dec 2014 with an average admission rate of 22.4 cases each year. Table 1 shows the incidence each year.

Table 2 showed that human rabies cases were more in males (72.3%). This is probably because men were more exposed to animal bites due to their outdoor activities. Adults of age group 40-60 years were more affected (30.35%), least affected were elderly people > 60 years (6.25%). (23.21%) rabies cases were from children aged <10 years. The study by Lakhnupal and Sharma showed that the most affected groups were adolescent age group⁷ and the study by Chowdhary and Modak stated that age group 1-10 years were effected most.⁸ But in our region we observed that the adults of 41-60 years age group are most affected. The least affected group is elderly > 60 years which is similar to the study of Kumar and Pal.⁹

The majority of human rabies cases were due to dog bites. This finding is similar to other studies conducted all over India.⁷⁻¹¹ In 4 cases history of animal bite was not present, but all the four cases were having hydrophobia and aerophobia and 3 cases died within 6 hours of admission and one case absconded. As per the WHO criteria¹² these 4 (3.57%) cases were classified as 'suspected cases' (compatible with clinical description only) and the remaining 108(96.43%) cases were classified as 'probable cases' (suspected cases plus history of contact with suspected rabid animals) of human rabies. None of the human rabies cases belonged to the confirmed category (i.e., laboratory confirmed), as autopsies were not performed.

Hydrophobia, which is the predominant feature of human rabies, was present in 96.4% of cases. The other clinical features observed were aerophobia, photophobia, excessive salivation, altered behavior, irritability, paresthesia tingling numbness at the site of bite. This finding is also similar to other studies conducted all over India.⁷⁻¹¹

Most of the cases belonged to the rural areas, maximum number of cases reported from Mehaboobnagar district. This data suggests that there should be free and 24 hour availability of vaccines and immunoglobulin in all the public health centers especially in the rural areas with proper cold chain maintenance of the vaccines.

Rabies is a hundred percent fatal disease. There is no effective treatment available for rabies. So prevention by taking pre-exposure prophylaxis for high risk groups and post-exposure prophylaxis after dog bite is life saving. Post

exposure prophylaxis includes administration of rabies immunoglobulin around the wound (for category 2 and 3 wounds) and 4 doses of intra dermal antirabies vaccine to be taken on the day 0, 3, 7, 28 of the bite. Table 3 showed that most (81.25%) cases never received any vaccination and remaining cases have taken incomplete course of antirabies vaccine (16.07%) and had not taken rabies immunoglobulin. Two (1.79%) cases completed the full course of antirabies vaccine but did not take rabies immunoglobulin. Only 1(0.89%) case had taken rabies immunoglobulin but did not complete the course of antirabies vaccine, in this case immunoglobulin was also taken after 6 days which is supposed to be taken immediately. There was no case of rabies where in a person bitten by an animal has taken antirabies vaccine and rabies immunoglobulin soon after the bite and still developed the disease. This finding is also similar in the studies conducted on the epidemiology of rabies all over India.⁷⁻¹¹ Wound care like washing the wound with soap water immediately after the bite is an important step in preventing rabies by removing the virus from the site of bite. However in our study the information regarding washing of wounds could not be obtained from subjects.

CONCLUSION:

As the disease is incurable it is important to focus on policy and planning to reduce the incidence of exposure to animal bites and promoting awareness and behavior which can help to prevent the disease. Health education should be provided to increase the awareness in the community about the wound care, post exposure vaccination and rabies immunoglobulin after animal bite.

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