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Original Research Article

A study of human rabies cases admitted in infectious disease hospital KGMU, Lucknow, North India

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ABSTRACT

Background: Rabies is only communicable disease of man that is always fatal but easily preventable disease, if animal bites are appropriately and timely managed. It is estimated that India continues to report every year 25,000 to 30,000 human rabies deaths. The objective of this study was to describe the clinic epidemiological characteristics of human rabies.
Methods: Analysis of the records of probable rabies cases admitted into the Infectious Diseases Hospital, KGMU, Lucknow during 2010-2014.
Results: Total 490 human rabies cases were admitted during study period. Majority (63.26%) of the victims were between 12-60 years of age. Males constituted 83.47% of cases and victims from rural areas were 92.65%. Principal biting animal was dog (94.29%). Majority of the cases (77.96%) were not vaccinated. Most of the cases (93.47%) left against medical advice within 24 hours after admission.
Conclusions: Rabies is a major health problem in this part of India. The data indicates that there is still much to do for mitigation of this menace and the crux of the problem is the epidemiological trend has not changed much. Hence, there is an immediate and urgent need to educate the community and health workers about the importance of immediate and adequate post-exposure treatment. Prevention strategies are critical to better manage rabies in these endemic areas.

Keywords: Rabies, Hydrophobia, Anti rabies vaccines, Dog bite, Post exposure treatment

INTRODUCTION

Rabies is also known as hydrophobia. It is an acute, highly fatal viral disease of the central nervous system, caused by *Lyssavirus* type 1. It is azoonotic disease of worldwide importance. According to WHO report, in many countries rabies is spreading in spite of great advances in research and field control method. Human mortality from endemic canine rabies is estimated to be around 55,000 deaths annually with over 31,000 deaths in Asia alone.[1] An estimated 6 million people undergo post exposure treatment (PET) of rabies annually worldwide.[2] Two countries India and Bangladesh belongs to high incident category (WHO 1999).[3]

In India rabies is present throughout the country, except in the islands of Lakshadweep, Andaman and Nicobar. It is estimated that India continues to report every year 25,000 to 30,000 human rabies deaths, with incidence of 1.7 per 100,000 population which accounts to 60% of the global report of 55,000 deaths. But actual number of deaths due to rabies may be 10 times more than those reported. The annual animal bite load is estimated to about 17.4 million (1.7%) and 46.9% takes anti-rabies vaccination.[4] Main biting animal is dog (91.5%). The dog population in India is estimated to be around 25 million, and most of them are not protected against rabies.[3] Awareness about rabies is very poor.[5] Less than 50%

cases of animal bites wash their wound with soap and water and around 20%-40% cases follow indigenous and religious remedies.[6]

However, in the recent times many changes have taken place in the country viz., the modern vaccines imported initially in 1970s are now manufactured indigenously both in public and private sector and are now also exported. Rabies is almost cent percent fatal disease, but easily preventable disease if animal bites are appropriately and timely managed.[7] Despite trial with various antivirus agents, there is no therapy of proven value once the disease is manifested.[8] Appropriate care of wound, adequate post-exposure treatment (PET) with modern TCV with RIG (when indicated) according to WHO guideline can prevent the disease amongst most of the persons exposed to rabid animals.[9,10]

This descriptive type of study was done retrospectively to see the clinic-epidemiological characteristics of the rabies victims admitted in Infectious Diseases Hospital (IDH), King George's Medical University (KGMU), Lucknow during period of 2010 to 2014.

METHODS

Infectious Diseases Hospital, KGMU, Lucknow is situated in central part of Uttar Pradesh and it is common practice for the physician of this area to refer rabies cases to this hospital. Rabies cases are also referred from other areas of Uttar Pradesh. Hospital records of 490 cases of rabies (having hydrophobia) admitted to the IDH, KGMU, Lucknow during period January 2010 to December 2014 were analyzed retrospectively. Diagnosis of human rabies was on clinico-epidemiological basis and hence were "probable cases" and none had laboratory confirmation of diagnosis. Clinical case sheet had data on age, sex, date of admission, place of bite, type and name of animal, duration between bite and development of symptom, type of symptoms, post exposure vaccination, administration of vaccine after animal bite, fate of animal.

RESULTS

Table 1 showed that human rabies cases were more among males (83.47%) than females. Overall adult age group (12 to 60 years) was found to be most vulnerable (63.26%) whereas least number of cases (7.34%) were from elderly people (>60 years). It can be similarly observed from the Table, that more rural people suffered from rabies (92.65%) whereas urban people were at low risk (7.35%). It was also evident from the table that Hindus suffered more from the disease (91.22%), while Muslims were suffered very less (8.78%).

It was evident from Table 2 that 462 (94.29%) of human rabies cases were victims of dog bite whereas only 28 (5.71%) of cases were from other animal bites. The fate of 459 (93.67%) biting animal was not known as victim or their relatives did not observe them. Only 18 (3.67%) biting animals were still alive at the time of admission to IDH. The present study also showed that only 1.22% of biting animal were known vaccinated.

Table 1: Biosocial characteristics of rabies patients (N=490).

Characteristics	Number	Percentage (%)
Sex		
Male	409	83.47
Female	81	16.53
Age (in years)		
<12	144	29.38
12-60	310	63.26
>60	36	7.34
Residence		
Rural	454	92.65
Urban	36	7.35
Religion		
Hindu	447	91.22
Muslim	43	8.78

Table 2: Profile of biting animal (N=490).

Characteristics	Number	Percentage (%)
Type of animal		
Dog	462	94.29
Others (Cat/ Monkey/ Jackal/ wild animal)	28	5.71
Fate of animal		
Dead	13	2.65
Alive	18	3.67
Not known	459	93.67
Vaccination status		
Vaccinated	6	1.22
Not vaccinated/ not known	484	98.78

Table 3: Seasonal variation in human rabies cases (N=490).

Month	Number	Percentage (%)
January-April	156	31.84
May–August	186	37.96
September-December	148	30.20

As observed from the Table 3 that total rabies cases admitted during the study period was 490.Out of which 186 (37.96%) cases was the highest number of cases admitted during the month of May to August, and 148 (30.20%) was the lowest number of cases admitted during the month of September-December.

It was clearly depicted in Table 4 that maximum number of cases 287 (58.57%) showed incubation period of 1-6 months. One hundred sixty seven (34.08%) of rabies cases showed incubation period within 1 month. Majority

of human rabies cases (91.63%) stayed for less than 24 hours in this hospital. Only 8 (1.63%) cases were remain admitted for more than 72 hours. Patients were showing hydrophobia as pathognomic signs present in all cases. Aerophobia was also seen in 309 (63.06%) cases. Violent behaviour was seen only in 2.86% of cases. It was also evident that majority of human rabies cases (77.96%) had not received any antirabies vaccine at all. Only 74 cases (15.10%) had undergone fully or partially anti-rabies vaccination. Immunization status of 34(6.94%) cases was not known. Only 32 (6.53%) people died in the hospital whereas 458 (93.47%) left the hospital in critical condition against medical advice.

Table 4: Disease characteristics and post bite vaccination (N=490).

Characteristics	Number	Percentage (%)
Incubation period		
<One month	167	34.08
One – six months	287	58.57
>Six months	36	7.35
Duration of stay in hospital		
<24 hours	449	91.63
24–72 hours	33	6.78
>72 hours	8	1.63
Disease symptoms*		
Hydrophobia	490	100.00
Aerophobia	309	63.06
Violent behaviour	14	2.86
Post bite vaccination		
No vaccination	382	77.96
Vaccinated (fully/partially)	74	15.10
Not known	34	6.94
Fate of patient		
Died in hospital	32	6.53
Left hospital in critical condition	458	93.47

*Contains multiple response.

DISCUSSION

Our study showed that human rabies cases were more in males (83.46%). Similar findings were observed in other studies. The trend was probably because men were more exposed to animal bites due to their outdoor activities for their occupational compulsion.[11-13]

It was obvious from the present study that adult age group (12 to 60 years) was found to be most vulnerable (63.26%). It was not similar to the study of Chowdhury and Modak, who mentioned that age group1-10 years were suffering most (35.4%).[14]

It can be similarly observed from the present, that more rural people suffered from rabies (92.65%) whereas urban people were at low risk (7.35%), which was similar to the findings of Haque et al who also mentioned that rural people were most at risk showing maximum number of victims (89.4%) of all cases. Poverty, ignorance and faith in indigenous medicines are more common in rural people that's why cases belonged to the rural areas contributed to the main bulk of the cases in this study.[15]

It was evident from our study that most of human rabies cases were victims of dog bite. This result corroborated with the findings of previous studies. So, it was distinct that stray dogs were playing major and vital role in the transmission of rabies.[11,12,14,16]

The present study showed overall no significant seasonal variation, as frequency of rabies cases admitted was almost same though out the year. This result is almost similar to study conducted in Kolkata, India.[17]

It was clearly depicted in our study that maximum number of cases (58.57%) showed incubation period of 1-6 months. Similar observations regarding the duration of incubation period have also been made by other authors.[18,19]

It was evident from our study, that 77.96% human rabies cases had not received any antirabies vaccine at all. Only 15.10%cases had undergone fully or partially anti-rabies vaccination. These findings were supported by the report of Mahendra et al who mentioned that there were no anti rabies vaccination in 64% of the cases.[20]

Only few patients died in the hospital whereas majority of patients left the hospital in critical condition against medical advice after learning about the fatal outcome. This finding was an agreement with the findings of study conducted in Bangladesh which showed that 4.1% rabies cases died in hospital, where as 96.8% left against medical advice.[15]

CONCLUSION

Majority of the human rabies deaths occurred in adult males from rural areas. The principal animal responsible for rabies transmission was dog. Post exposure prophylaxis with rabies vaccination was very low. Majority of human rabies deaths occurred within six months of dog bite. Rabies is a disease which cannot be controlled until it will be fought at multidisciplinary approach. Efforts are needed to improve hospital care and management of human rabies patients. Education about the knowledge of the disease is of prime importance. First aid of wound toileting is of utmost significance. The coverage and usage of modern rabies vaccines and rabies immunoglobulins needs to be improved. There is an urgent need to tackle the menace of stray dog population, effective municipal licensing of pet dogs and awareness campaigns for better and responsible animal bite care and management practices.

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