

Original Research Article

Awareness about rabies and health seeking behavior among animal bite victims attending a tertiary care hospital of Jharkhand

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ABSTRACT

Background: Rabies is an acute fatal disease of central nervous system, caused by Lyssavirus Type 1. Rabies in dogs is the source of 99% of human infection. Awareness about rabies and health seeking behavior are crucial determinants of rabies control. Present study was done to assess awareness regarding animal bite and health seeking behavior among affected population.

Methods: A hospital based cross sectional study was conducted in central emergency department of Rajendra Institute of Medical Sciences, Ranchi, Jharkhand for a period of four months. A semi-structured questionnaire was used for data collection. Sample size was 114 using consecutive sampling method. The participants were interviewed after taking informed consent. Data collected were entered in MS Excel and analyzed using SPSS version 20.

Results: A total of 114 subjects participated in the study of which 83 (72.8%) were male and 31 (27.2%) female. Most commonly affected age group found was 21-30 years (35.1%). Majority 101 (88.6%) of them resided in urban areas, and only 79 (69.3%) acquired secondary education and above. Most of the animal bite was caused by dogs 102 (89.5%), unprovoked 79 (69.3%) in nature and most common site involved lower limb 70 (61.4%). Majority 68 (59.6%) of the dog bite wound were of category II. Only 55 (48.2%) of animal bite victims washed their wound with soap and water. Majority 58 (50.9%) of the study participants had no knowledge about consequences of dog bite. Median reporting time to tertiary institute was found to be four hours.

Conclusions: There was average level of awareness about rabies among animal bite victims attending RIMS, Ranchi.

Keywords: Awareness, Rabies, Health seeking behavior, Animal bite

INTRODUCTION

Rabies is an acute, highly fatal viral disease of the central nervous system, caused by Lyssavirus Type 1. It is primarily a zoonotic disease of warm blooded animals, particularly carnivorous such as dogs, cats, jackals, and wolves. It is transmitted to man usually by bites or licks of rabid animals. Rabies in dogs is the source of 99% of human infection.¹

Rabies occurs in 150 countries and territories, most commonly in Asia and Africa. Geographic boundaries

seem to play an important role here as water appears to be the most effective natural barrier to rabies. Australia, China, Japan, New Zealand, U.K., and the islands of Western Pacific all are free from the disease.² Worldwide endemic canine rabies is estimated to cause 55,000 deaths.³ A rabies free area has been defined as one in which no case of indigenously acquired rabies has occurred in man or any animal species for 2 years.⁴ An estimated 45% of all deaths from rabies occur in the south east Asian countries of the world. The situation is especially pronounced in India, which reports about 18000 to 20000 cases of rabies a year and about 36% of

the world's deaths from the disease.⁵ In India, rabies affects mainly people of lower socio-economic status and children between the ages of 5 and 15 years with total 20565 deaths reported from rabies per year.⁶

Community awareness regarding rabies and health seeking behavior are critical both for the prevention and control of the disease in humans and animals. Many Indian studies from different states has found varying level of awareness about the post dog bite management of animal bite wounds as well as about the disease rabies.⁷⁻¹² However, there is relative paucity of information from Jharkhand in this regard. Present study was done to assess awareness regarding animal bite management and health seeking behavior among affected population.

METHODS

This was a hospital based cross sectional study. Over a four month period from September 2018 to December 2018, all patients attending central emergency department of Rajendra Institute of Medical Sciences (RIMS), Ranchi, Jharkhand were approached for the study. Consecutive total sampling method was used for this study. Total 126 participants were contacted during study period and 12 did not participate in study. Hence, total 114 participants willing to participate, were included in our study. A semi-structured questionnaire was used for data collection. The variables to describe their socio-demographic profile were age, sex, religion, occupation, residence, marital status, income and education were included in questionnaire. Socioeconomic status was classified according to Modified B G Prasad

Classification 2017. Other questions were included to know about bite characteristics, awareness about rabies and health seeking behavior of respondents. The participants were interviewed after taking informed consent. Attendant of minor victims were interviewed and adult victims responded by themselves. The data were entered in MS excel spreadsheet and was analyzed using SPSS software. Chi-square test was used as test of significance and p value less than 0.05 was considered as statistically significant. Study was done after approval from institutional ethical committee.

RESULTS

A total of 114 participants were included in our study. The age-group of 21-30 years was most commonly affected (35.1%) followed by 11 – 20 years of age group (23.7%). The median age of the animal bite victims was found to be 23 years. Males were most commonly involved 83 (72.8%) than females 31 (27.2%). Majority 101 (88.6%) of the animal bite victims were from the urban area and most 79 (69.3%) of the participants had completed secondary education and above (Table 1). Bite by stray animals 72 (63.2%) was reported more than the pet animals 42 (36.8%) among the animal bite cases. In the present study, dog bite 102 (89.5%) was found to be more common, followed by cats and other animals like monkey and mouse. Our study reveals that most of the animal bite cases were unprovoked 79 (69.3%). Lower limb 70 (61.4%) was the most common site of injury, followed by upper limbs 36 (31.6%). Majority of the patients reported with category II bite (59.6) followed by category III (25.4) (Table 2).

Table 1: Socio-demographic profile of study participants (n=114).

Characteristics	Frequency	%	
Gender	Males	83	72.8
	Females	31	27.2
Age (in years)	Upto 10	23	20.2
	11- 20	27	23.7
	21-30	40	35.1
	31-40	11	9.6
	41-50	06	5.3
	51-60	05	4.4
	>60	02	1.8
	Religion	Hindu	8
Muslim		14	12.2
Christian		15	13
Sarna [#]		3	2.4
Residence	Rural	13	11.4
	Urban	101	88.6
Type of family	Joint	15	12.9
	Nuclear	99	87.1
Education	Primary education	35	30.7
	Secondary education and above	79	69.3
Employment	Employed	50	43.9
	Unemployed	64	56.1

Continued.

Characteristics	Frequency	%	
Socioeconomic status*	Class 1	9	8
	Class 2	12	10.3
	Class 3	46	40.3
	Class 4	24	20.8
	Class 5	23	20.6

Local religion of Jharkhand.

* As per Modified B.G. Prasad Classification 2017.

Table 2: Bite characteristics among victims (n=114).

Bite characteristics	Number	%	
Animal involved	Dog	102	89.5
	Others*	12	10.5
Type of animals	Pet	42	36.8
	Free roaming	72	63.2
Type of bite	Provoked	35	30.7
	Unprovoked	79	69.3
Wound category	Category I	17	14.9
	Category II	68	59.6
	Category III	29	25.4
Affected body part	Face	5	4.4
	Trunk	3	2.6
	Upper limb	36	31.6
	Lower limb	70	61.4

*Others included cat, rat etc.

Table 3: Awareness about rabies (n=114).

Variables	Number	%	
Heard 'Rabies'	Yes	82	71.9
	No	32	28.1
Heard about vaccine for dog bite	Yes	88	77.2
	No	26	22.8
Know about consequences of dog bite*	Yes	56	49.1
	No	58	50.9
Rabies is curable	Yes	18	15.8
	No	96	84.2
Rabies is preventable	Yes	77	67.5
	No	37	32.5
Source of information	Media	11	9.6
	Friends/family	81	71.1
	Health personals	14	12.3
	Others	8	7.0

*Common consequences were hydrophobia, madness, causes some fatal disease etc.

Among all the animal bite victims, 82 (71.9%) had heard about word 'rabies' and 88 (77.2%) knew about vaccine against dog bite. More than half of victims (50.9%) did not know consequences after dog bite. Among all victims, 18 (15.8%) were having misconception that rabies is curable and only 77 (67.5%) said that rabies is preventable. Friends and family members were most common 81, (71.1%) source of information for respondents (Table 3). Among all respondents, majority 67 (58.8%) had perception that after an animal bite wound should be washed first and remaining 47 (41.2%)

think that after bite one should directly go to hospital. Nearly all 112, (98.2%) respondents first of all visited to health care system after bite. Among those who reported to health care system first, 99 (87.7%) reported within 24 hours of bite. Nearly half of the respondents 55, (48.2%) washed wound with soap and water initially after bite whereas 7 (6.1%) respondents did not wash the wound. Among victims who were in need of immunoglobulin 22 (75.9%) took immunoglobulin (Table 4). Among respondents from rural areas only 33.8% had heard the word rabies and among those from urban areas 70.2% had heard the word rabies. This difference was found to

be statistically significant (p value=0.001). Although there was difference in knowledge about rabies on the

basis of education and gender of respondents, they were statistically insignificant (Table 5).

Table 4: Health seeking behavior (n=114).

Health seeking behavior	Number	%	
Perception about first step after bite	Go to hospital	47	41.2
	Wash wound with soap and water	67	58.8
First place visited after bite	Health care system	112	98.2
	Traditional healers	01	0.9
	Others	01	0.9
Time taken to reach health care system (n=112)	Within 24 hours	99	87.7
	More than 24 hours	13	12.2
Wound washed after bite	Water only	23	20.2
	Water and soap	55	48.2
	Water and antiseptics	29	25.4
	Did not wash	07	6.1
Compliance for immunoglobulins (n=29)	Yes	22	75.9
	No	07	24.1

Table 5: Association between knowledge about rabies and socio-demographic variables (n=114).

Variables	Knowledge about rabies		Total	P value
	Yes N (%)	No N (%)		
Place				
Rural	04 (30.8)	09 (69.2)	13	0.001
Urban	78 (77.2)	23 (22.8)	101	
Education				
Primary education	05 (14.29)	30 (85.71)	35	0.089
Secondary and above	23 (29.11)	56 (70.89)	79	
Gender				
Male	65 (78.3)	18 (21.7)	83	0.625
Female	23 (74.2)	08 (25.8)	31	

DISCUSSION

In our study, we found that 72.8% of victims were males and 27.2% were females which resembles well with the findings of a study done by Tandon et al in Jammu, India in 2017, where it was found that 76% were males and 24% were females.¹³ In another study done by Tiwari et al in a rural community revealed higher male victims (70%) than female (30%).¹⁴ All these studies show higher preponderance of males to be a victim of animal bite irrespective of rural or urban area. This may be due to more outdoor activities by males than females. In study done by Tiwari et al. it was found that animal bite cases were distributed across all age group in adults in similar proportions.¹⁴ Another multicentric study by Sudarshan et al found that about 25% victims were children less than 14 years of age and remaining were more than 14 years old.⁶ Present study revealed that young people in the age group 21-30 years were the most common victims of animal bite i.e., 35.19%. However, we also found that

children up to age of 10 years constituted 23% of reported cases and remaining were older than 10 years. This finding is very similar to findings of study by Sudarshan et al.⁶

Among all animal bite victims usually dog bite cases reported more. In present study majority victims were of dog bite. This finding is similar to report from different studies^{9, 15-17}. Present study also revealed that majority of animal bite cases were due to unprovoked bite by free roaming dogs. These findings are similar to that of a study done by Ichhapunjali et al in India.¹⁶ In our study we found that large majority (85%) of victims was in category II and category III bites. A study done by Chaudhari in West Bengal in 2013 shows all cases were from category II and Category III bites.¹⁷ Another study done by Agarwal and Reddaiah in 2003 also revealed maximum cases from category II and category III.¹⁸ Due to easy accessibility, extremities especially lower extremity considered to be most commonly affected part

of body for animal bite. Studies from different part of country has supported this consideration by showing that most common sites for animal bite were upper and lower extremities.^{17,19-21}

Our study also tried to assess awareness about disease caused by dog bite. In present study, 71.9% subjects had heard word 'Rabies'. A study done by Valekar et al in a rural area of Maharashtra found that 77% people were knowing that some disease is caused by dog bite and among them only about 47% were knowing the term 'Rabies'.²² Reason for lower level of knowledge on 'Rabies' could be the difference in study setting and population, as our study is hospital based and more people from urban area whereas later study was done in a rural area. Although in our study 71.9% subjects were aware of word 'Rabies', 77.2% people were knowing about some vaccine for dog bite cases. This difference may be attributed to fact that researchers were specific about word 'Rabies'. Hydrophobia and madness were the common symptoms reported by subjects in study by Valekar et al and in present study also these were most commonly reported consequences among those who were aware of any consequences of Rabies.²²

In this study we found that after animal bite majority people preferred to wash wound with soap and water before going anywhere and almost all people went to health care system for their treatment first of all. This is encouraging sign as it reflects better health seeking behavior of people. In present study, majority of subjects reported to health care system within 24 hours with median time taken was 4 hours. Study done by Chaudhari in West Bengal reported median time taken was 3 hours whereas only around 18% subjects reported within 24 hours.¹⁷ Reason for these differences may be accessibility of health care facilities, Low awareness and poor health seeking behavior of respondents. Wound washing with soap is an important and very crucial step in prevention of human rabies. In our study it was found that about half of victims washed their wound with soap and water, while around one fourth applied antibiotics after wound washing. Seven subjects did not wash wound at all. A similar finding with varying percentage has been reported in other Indian studies.^{17,22,23}

Limitation

The limitation of our study was small sample size, hospital based study and less study duration. As the subjects included in the study were victims who attended a tertiary care centre, its findings cannot be generalized to the whole population.

CONCLUSION

More than two-third of the respondents had heard about rabies and more than three fourth knew about some vaccine for dog bite. Nearly half of study subjects

practiced wound washing with soap and water. Majority of subjects reported to health care system within 24 hours. Knowledge about rabies is significantly associated with place of residence.

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