Research Article

A study on knowledge of animal bite victims regarding animal bite and rabies attending tertiary care hospital of Rewa City, Madhya Pradesh

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Abstract

Background: Rabies is an acute fatal viral encephalitis that usually transmitted from animals to man followed by domestic and wild animal bites.

Objective: To identify the level of general awareness and knowledge of wound management and rabies among the cases of animal bite and to study the awareness of people about antirabies vaccines and health service utilization.

Materials and Methods: Cross-sectional institutional study was conducted in 406 animal bite victims presenting to the tertiary care hospital, Rewa, Madhya Pradesh. A pretested and structured oral questionnaire was used to elicit the required information regarding knowledge of animal bite victims about animal bite and rabies, its transmission, prevention, and control. Data were analyzed using graphpad software.

Result: All 406 animal bite victims knew about injury after animal bite. 54.9% victims knew about fatality of rabies, 63.7% victims knew that rabies is caused by biting of animal, and 17.4% knew that rabies is transmitted by saliva. Source of information was health facility for 48% victims. 85.5% victims knew about application of antiseptic solution on animal bite wound. 34% victims knew about correct number of injection, 40.4% knew about correct site, and 33.3% knew that ARV should be taken immediately. 57.9% victims knew that observation should be done in animal. 33.1% victims knew that local treatment should be taken as soon as possible.

Conclusion: This study has shown that the community level knowledge is satisfactory about rabies, its prevention, and control. Knowledge found to be low for the modes of rabies transmission, prevention methods after suspected animal bite, the first action taken in the home after bitten by a suspected animal and for ARV.

KEY WORDS: Animal bite, knowledge, rabies, ARV, India

Introduction

Rabies is an enzootic and epizootic disease of worldwide importance. Globally, two persons die every hour due to rabies.[1] Rabies is an acute fatal viral encephalitis that usually transmitted from animals to man followed by domestic and wild animal bites. Rabies disease is one of the most important public health problems in some countries of the world such as those in the Eastern Mediterranean region.[2] Rabies is a 100% fatal disease. The disease is entirely preventable, provided complete postexposure prophylaxis is implemented promptly. Globally, rabies is the tenth leading cause of death due to infection in humans.[3]

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Of the estimated 55,000 annual deaths due to human rabies in the world, more than 33,000 fatalities are likely to take place in the South-East Asia Region (SEAR).[4] Rabies is reported in India throughout the year from all states except Lakshadweep and the Andaman & Nicobar Islands.[5] Since rabies is not a notifiable disease in India and there is no organized surveillance system of human or animal cases, the actual number of deaths may be much higher. The

majority of the cases of rabies (about 97%) are due to bites from rabid dogs, followed by bites from other animals such as the cat, cow, monkey, horse, pigs, and camels.[6] This major source of rabies in humans can be eliminated through ensuring adequate animal vaccination and control, educating those at risk, and enhancing access of those bitten to appropriate medical care.[7] In Asia, most of the mortality cases of human rabies were reported from the underdeveloping countries such as India, Pakistan, and Bangladesh which have high populations and have no specific strategies for controlling rabies. The higher rates of morbidity and mortality in Asia were observed among developing countries, where animals specially dogs have poor population control measures.[8]

Unquestionably the level of knowledge of the community and concern about dog bite injuries has an important role to play in dealing with this problem.[9] Till date no study has been done to highlight the scenario of animal bite in this region. Therefore this study is undertaken to find out knowledge of dog bite victims and the treatment seeking behavior regarding animal bite.

Materials and Methods

This cross-sectional study was undertaken among animal bite victims attending outpatient department GMH, SGMH associated with medical college and District Hospital Bicchhia of Rewa city from February 2014 to February 2015. Data collection was done for 406 subjects. The sample size was estimated by taking the average of previous 3 years of animal bite victims attending GMH, SGMH and District Hospital, Bicchhia. Victims of 10% fulfill the study purpose hence sample size was determined to be 406 study subjects. Those who are critically injured, not able to respond, and who did not give consent were excluded.

Ethical Clearance

The study is commenced after approval from institutional ethical committee. Invasive procedure and active interventions were not done in the study so only informed verbal consent was taken. They were assured that their responses would be kept anonymous and confidentiality maintained.

Data Collection Method

These health-care centers were visited by the interviewer for 2 days in a week for the purpose of data collection. All the cases of animal bite victims visiting at these centers on particular day were contacted and explained about the study purpose. In case of child victim (<15 years) attendees preferably mother or father were explained about study and information collected thereafter. Face-to-face interview of victims and local examination was done after taking informed verbal consent. A pretested and structured oral questionnaire was used to elicit the required information regarding knowledge of animal bite victims about animal bite and rabies, its transmission, prevention, and control.

Study Variables

Data were collected regarding knowledge about consequences of animal bite, knowledge about rabies and its transmission, source of information about rabies, knowledge about theoretical practices after animal bite, knowledge about ARV, knowledge about symptoms of rabies infection in animals, methods for prevention and control of Rabies, knowledge about time interval for taking local treatment. Data were analyzed using Graphpad software. Results were presented in percentages and proportion.

Result

All victims knew about injury after animal bite and 90.4% victims knew that rabies occurs after animal bite [Table 1]. 54.9% victims knew about fatality of rabies, 63.7% victims knew that rabies is caused by biting of animal and 17.4% knew that rabies is transmitted by saliva [Table 2]. For majority of victims (48%), source of information was health facility/health personnel [Table 3]. Majority of victims (85.5%) are of opinion about application of antiseptic solution/antibiotic on animal bite wound followed by injection of tetanus toxoid (TT) (75.9%) whereas only 47.8% victims knew about washing the wound with soap and water/only water and only 1.2% victims knew about taking injection of immunoglobulin [Table 4].

Table 1: Knowledge about consequences of animal bite (n = 406)*

Consequences of animal bite	Frequency	Percentage
Death	23	5.7
Infection	378	93.1
Injury	406	100
Rabies	367	90.4

*multiple response.

Table 2: Knowledge about rabies and its transmission (n = 367)

Knowledge about rabies	Frequency	Percentage
Rabies can cause death	156	54.9
Cause of rabies is virus	45	12.3
How does rabies occur?*	No.	%
Biting of dog, cat, and other animals	234	63.8
Licking on broken skin, wound	28	7.6
Scratching	118	32.1
Don't know	64	17.4
How rabies is transmitted?*	No.	%
Teeth	209	56.9
Saliva	64	17.4
Nails	118	32.1
Don't know	56	15.2

*Multiple response.

Table 3: Source of Information about rabies (*n* = 367)

Source	Frequency	Percentage
TV	11	3.0
Newspaper	32	8.7
Posters/leaflet	12	3.3
Family members/friends/neighbors	136	37.0
Health facility/health personnel	176	48.0

Table 4: Knowledge about theoretical practices after animal bite (*n* = 406)*

Practices	Frequency	Percentage
Consult to local doctor/health personnel	129	31.8
Tie the wound	52	12.8
Kept open	84	20.7
Don't know	270	66.5
Wash the wound with soap and water/ only water	194	47.8
Application of antiseptic solution/ antibiotic	347	85.5
Nothing should be done	45	11.0
Injection of ARV	156	38.4
Injection of TT	308	75.9
Injection of immunoglobulin	05	1.2
Ingestion of antibiotics and anti-inflammatory	256	63.0

Only 34% victims knew about correct number of injection of ARV, 40.4% victims knew about correct site of ARV and 33.3% victims knew that ARV should be taken as soon as possible [Table 5]. 84.2% victims knew about aggressive behavior, increased biting habits occurs of animal due to rabies infection followed by increased salivation (44.1%). 57.9% victims knew that observation should be done in animal of which 41.4% knew that observation should be done in dog and cat only and 27% knew about observation period correctly [Table 6].

57.6% victims were of opinion that health education should be imparted for rabies prevention and control followed by prohibition of dogs in public places and street (45.3%) [Table 7]. 33.1% victims knew that local treatment should be taken as soon as possible [Table 8]. Significant difference has been found between knowledge of preventive measures for rabies and wound care b/w males and females [Table 9]. Knowledge regarding rabies was significantly higher among subjects having attained education upto primary level [Table 10].

Table 5: Knowledge about ARV (*N* = 156)

No. of injection given	Frequency	Percentage
3	30	19.2
5	53	34.0
14	12	7.7
Don't know	61	39.1
Where ARV is administered		
Glutea region	47	30.1
Shoulder	63	40.4
Abdomen	14	9.0
Don't know	32	20.5
Time interval for first dose of ARV		
As soon as possible	52	33.3
Within 1 week	37	23.7
Any time	33	21.2
Don't know	34	21.8
Knows about government free supply of vaccine (*n* = 406)	182	44.8

Table 6: Knowledge about symptoms of rabies infection in animals (*n* = 406)

Consequences of Rabies infection in animal*	Frequency	Percentage
Paralysis, coma	93	22.9
Death	78	19.2
Increased salivation	179	44.1
Aggressive behavior, increased biting	342	84.2
Silent behavior, lethargic, decreased appetite	85	20.9
Change in voice	89	21.9
Don't know	15	3.7
Observation done in animals		
Yes	235	57.9
No	79	19.4
Don't know	92	22.7
Observation done for which animal		
Dog and cat	168	41.4
Jackal, horse, wolf, bear, monkey	45	11
All animals	22	5.4
Time for observation		
<10 days	125	30.8
≥10 days	110	27

*Multiple responses.

Discussion

In this study, all victims knew about injury after animal bite, 90.4% victims knew that rabies occurs after animal bite and 5.7% knew that victim could die due to severity of animal bite. According to Anita khokhar et al.,[9] 38.9% victims were aware of the fact that the victim could die whereas 25.7% were not aware of any consequences. A study carried out by Renu Bedi et al.[10] reported 29.5% cases knew that the

Table 7: Methods for prevention and control of rabies (*n* = 406)*

Methods for prevention and control of rabies	Frequency	Percentage
Vaccination of dogs	98	24.1
Health education	234	57.6
Isolation and killing	134	33.0
Prohibition of dogs in public places and street	184	45.3

*Multiple responses.

Table 8: Knowledge about time interval for taking local treatment found (*n* = 406)

Knowledge about taking local treatment	Frequency	Percentage
As soon as possible, immediately	134	33.1
Should not be done	56	13.8
Don't know	55	13.5
Any time	161	39.6

Table 9: Sex-wise distribution of study subjects for knowledge regarding rabies

Knowledge regarding rabies (*n*)	Sex		*P*-value
	M = 310	F = 96	
Heard about rabies (367)	285	82	0.089 NS
How does rabies occurs (262)	205	57	0.2772 NS
Transmission of rabies (64)	40	24	0.0073 S
Wash wound immediately (134)	81	53	<0.0001 S
ARV (156)	104	52	0.0004 S
Observation for dog and cat for 10 days (110)	70	40	0.0004 S

Table 10: Education status-wise distribution of study subjects for knowledge regarding rabies (406)

Education status Knowledge regarding rabies	Below primary	Primary and above	*P*-value
Knowledge about rabies (367)	62	305	<0.0001S
How does rabies occurs (262)	43	219	<0.0001S
Transmission of rabies (64)	8	56	0.0459S
Wash wound immediately (134)	19	115	0.0025S
ARV (156)	24	132	0.0064S
Observation for dog and cat for 10 days (110)	15	95	0.0100S

victim could die, whereas 26.6% were not aware of any consequences. In this study, 54.9% victims knew about fatality of rabies. Kakrani et al.[11] reported that 90.7% respondents had knowledge about fatality of rabies. According to TadesseGuadu et al.[12], Ethopia 94.9% study participants answered that rabies is a dangerous and fatal disease. Rumana[13] from Bangladesh reported that 77.5% knew about fatality of the disease.

In our study, 63.7% victims knew that rabies is caused by biting of animal and 17.4% knew that rabies is transmitted by saliva and 12.3% knew about causative agent of rabies is virus. Rumana[13] reported that 75% victims knew about animal bite as source of rabies. TadesseGuadu et al.[12], Ethopia reported that 60.1% knew that virus is the cause of rabies, 45% had correct knowledge about transmission of rabies, and 71.3% were aware that dog is the most common source of rabies. Study done by Prakash[1] reported that all study participants had knowledge regarding transmission of rabies by dog bite, compared to only 23% who were having knowledge about its transmission by scratches and licks of a rabid dog. In response to the question on transmission of rabies by bite of animals other than dog, 17% responded for cat and 12% for monkey.

Most common source of information about rabies is found to be health facility/personnel in our study (48%). Tadesse Guadu et al.[12], Ethopia reported that only 10.7% respondents receive information about rabies from mass media (formal source). Gino et al.[4] reported that most of the information came from various sources such as tri-media (radio, newspaper, and television) (44.3%).

In this study, majority of victims (85.5%) are of opinion about application of antiseptic solution/antibiotic on animal bite wound followed by injection of TT (75.9%) whereas only 47.8% victims knew about washing the wound with soap and water/only water and only 1.2% victims knew about taking injection of immunoglobulin. Study done by Kakrani et al.[11] reported that 52.1% respondents felt that washing wound with soap and water would be beneficial.

In our study, only 38.4% were aware of the vaccine. Of these, 34% victims knew about correct number of injecti on of ARV, 7.7% said that 14 injections to be taken, 40.4% subjects knew about correct site of ARV, 9% mentioned abdomen as site of injection, and 33.3% victims knew that ARV should be taken as soon as possible. Kakrani et al.[11] revealed that 83.9% participants reported abdomen as site of injection. Parakash et al.[1] revealed 55.5% study participants were aware about the role of vaccine in preventing rabies. Of all, 15.8% study participants knew that five injections have to be taken on being bitten by a dog. Singh et al.[14] reported 86.6% individuals were aware about antirabies vaccine. 79% knew that 14 injections have to be taken and 5.7% know of 10 injections on abdomen.

In our study, most common symptom identified was 84.2% aggressive behavior, increased biting habits followed by increased salivation in 44.1% individuals. Prakash[1] reported that 35% individuals mentioned that the dog becomes irritable. 7% mentioned that skin lesions occur in the dog as one of the symptoms. In a study carried out by Singh et al.,[14] 37.7% individuals mentioned that tail becomes straight or down, dog runs against wind or in wind direction.

In our study, 57.9% victims knew that observation should be done in animal of which 41.4% knew that observation should be done in dog and cat only and 27% knew about observation period correctly. In a study done by Anita Kokhar et al.,[9] only

14.6% subjects were aware of the importance of observation of a dog who had bitten. A study done by RenuBedi et al.[10] reported that 69.3% victims were not aware of importance of observation of animal.

In this study, 57.6% were of opinion that health education should be imparted for rabies prevention and control followed by prohibition of dogs in public places and street (45.3%). Of all, 24.1% were in favor of vaccination of dogs. A study done by Prakash[1] reported that for control measures 62.5% participants suggested that the dogs should be caught and taken away from their locality by Municipal Corporation and 16.5% suggested that stray dogs should be sterilized. According to Singh et al.,[14] 66.6% individuals stressed about the need to control the dog population in India. And as regard the method to control the dog population is concerned, 33.3% were in favor of poisoning, 17.7% supported shooting, and 5.7% thought that castration of dogs was the best method. Only 4% favored killing the dogs by drowning. Only 5.7% accepted immunization as a good control method.

Conclusion

This study has shown that the community level knowledge is satisfactory about rabies, its prevention, and control. Knowledge found to be low for the modes of rabies transmission, prevention methods after suspected animal bite, the first action taken in the home after bitten by a suspected animal (wound washing with soap and water), and for antirabies vaccine. Sex and educational status of the victims were the variables found to be significantly associated with knowledge for rabies.

References

1. Prakash M, Bhatti VK, Venkatesh W. Rabies menace and control—an insight into knowledge, attitude and practices. Medical J Armed Forces 2014;69:57–60.
2. Esfandiari B, Youssefi MR, Fayaz A. Serodiagnosis evaluation of rabies and animal bites in North of Iran, 2010. J Gen Mol Virol 2011;3(5):71–3.
3. Satapathy DM, Behera TR. Clinical safety of intra dermal rabies vaccination (IDRV) with purified vero cell rabies vaccine (PVRV). Int J Pharma Bio Sci 2011;2(3):147–51.
4. Gino C, Yoshihide O, Koji K, Hiroko Y, Bandula R, Gamini P. A pilot study on the usefulness of information and education campaign materials in enhancing the knowledge, attitude and practice on rabies in rural Sri Lanka. J Infect Develop Countries 2009;3(1):55–64.
5. Park K. *Text Book of Preventive and Social Medicine*, 23rd ed. Jabalpur: M/s Banarsidas Bhanot Publication, 2015. pp. 276–7.
6. Chowdhury R, Mukherjee A, Naskar S, Lahiri SK. A study on knowledge of animal bite management and rabies immunization among interns of a government medical college in Kolkata. Int J Med Public Health 2013;3:17–20.
7. Rabies in the South East Asia Region. WHO. Rabies South east Asia regional office. Available from www.searo.who.int/about/administration_structure/__/CDS_RABIES.pdf [last accessed on 2014 July 11]
8. Strategies for the control and elimination of rabies in Asia. Report of WHO. Geneva, Switzerland: WHO, 2001.
9. Anita Khokhar, G.S. Meena, MaltiMehra. Profile of dog bite cases attending m.c.d. dispensary at Alipur, Delhi. Indian J Commun Med 2003;28(4):157–60.
10. Renu Bedi, Bedi DK, Anoop Tankha, Vinod Choudhary, Matoria RS. Profile of animal bite cases attending anti rabies clinic of J.L.N. Medical College & Hospital, Ajmer. APCRI J 2006;8(1):28–30.
11. Kakrani VA, Jethani S, Bhawalkar J, Dhone A, Ratwani K. Awareness about dog bite management in rural population. Indian Journal of Community Health 2013;25(3):304–08.
12. Tadesse Guadu, Anmaw Shite, Mersha Chaine, Basazinew Bogale, Tewodros Fentahun. Assessment of Knowledge, Attitude and Practices about Rabies and Associated Factors: In the Case of Bahir Dar Town. Global Veterinaria. 2014;13(3):348–54.
13. Rumana R, AaSayeed, Basher A, Islam Z, MrRahman, Ma Faiz. Perceptions and treatment seeking behavior for dog bites in rural Bangladesh. Southeast Asian J Trop Med Public Health 2013;44(2):244–8.
14. Singh US, Chaudhry SK. Knowledge, attitude, behavior and practice study on dog bite and its management in the context of prevention of rabies in rural area of Gujrat. Indian J Commun Med 2005;30(3):81–3.

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