

Knowledge of students about rabies and its post exposure prophylaxis and health seeking behaviour in University of Western UP.

Monika Gupta¹ Chhavi Kiran Gupta² Sartaj Ahmad³ Bhawana Pant⁴ Kaynat Nasser⁵ Deepak Kumar²

¹Associate Professor, ² Assistant Professor, Department of Community Medicine, Subharti Medical College Meerut, ³ Associate Professor, Medical Sociology, Swami Vivekananda Subharti University Meerut, ⁴Professor, Department of Community Medicine, Subharti Medical College Meerut, ⁵Assistant Professor(Biostatistics), Department of Community Medicine, Subharti Medical College Meerut

Abstract

Introduction: Rabies is a major public health problem in Asia. Of the estimated 55,000 human cases that occur annually worldwide, more than half occur in Asian countries. Rabies is exceptionally fatal encephalitis but can be prevented by appropriate post exposure prophylaxis. **Objectives:** To assess the knowledge of students about rabies and its causes, reservoir, mode of transmission, symptoms, wound management, post exposure prophylaxis, seeking behaviour, site for anti rabies vaccine administration after dog bite. **Methodology:** This cross-sectional study was conducted among 375 college students in various colleges under Swami Vivekananda Subharti University Meerut UP. **Results:** (55%) of students knew that rabies is caused by a virus. 18.66% students knew correct first aid measures such as wash with soap and water. **Conclusion:** The findings of the study indicated lack of knowledge on various aspects of the rabies & its prevention. There are many misconceptions and lack of awareness about rabies. There is strong need to organize awareness programme using educational session.

Key words: Students, Rabies, Misconception, Health seeking behaviour

Introduction

Rabies is an enzootic and epizootic disease of worldwide importance. Rabies is a major public health problem in Asia. Of the estimated 55,000 human cases that occur annually worldwide, more than half occur in Asian countries [1] In India, rabies is a zoonotic problem of considerable magnitude. Annual mortality more than 30,000 reported by national authorities may not be a complete picture because, since 1985 India continues to report the same every year. [2] Every year approximately 1.1 to 1.5 million people are receiving post exposure prophylactic treatment. Although two million bites occur each year in India and more than 95% of these cases are bitten by dogs [3]

The most well-known and ubiquitous lyssavirus is the rabies virus (RABV), which circulates in New World bats and both Old and New World terrestrial mammals. The vast majority of human rabies cases worldwide are transmitted by dogs infected with RABV. [4] In recent decades, initiatives aimed at raising rabies awareness (e.g. the World Rabies Day campaign) and lowering human exposure risk through mass vaccination of leading reservoir species have been implemented globally, coinciding with the development of highly potent human rabies vaccines. [5]

This study was undertaken to find out the knowledge, attitude, and practice regarding rabies and its prevention among the college going students.

Objectives of the present study were:

- 1) To assess the knowledge and awareness of students about rabies.
- 2) To ascertain the management of wound practiced

Corresponding author:

Dr Chhavi Kiran Gupta

Email:chhavikirangupta@gmail.com

by students after dog bite.

3) To assess the awareness of students regarding anti rabies vaccine & their health seeking behaviour.

Material and Method

This cross-sectional study was conducted among 375 college students in various colleges under Swami Vivekananda Subharti University Meerut UP. A Total of 375 first year students of three colleges were interviewed. Out of them, Law (185), Pharmacy (142)

and Mass communication (48) students were randomly selected for interview. A predesigned semi structured, pre-tested questionnaire was used after taking consent of the students. Permission from the institutional ethics committee of Subharti medical college, SVSU, Meerut was taken. A data collection for the study was carried out during from October to December 2019. The data was entered and analyzed by using Micro soft Excel software and the results were expressed in percentages and chi square test.

Results

Table 1: Distribution of study participants according to Knowledge of cause and reservoir of rabies.

Knowledge about cause of rabies	Law students (N=185)	Pharmacy students (N=142)	Mass Communication students (N=48)	Total (N=375)
Virus	105 (56.75)	82 (57.74)	20 (41.66)	207 (55.2)
Others	48 (25.94)	25 (17.60)	15 (31.25)	88 (27.46)
P value= 0.00 (Significant differences)				
Knowledge about reservoir of rabies				
Dog	160 (86.48)	125 (88.02)	32 (66.66)	317 (84.53)
Monkey	42 (22.70)	35 (24.64)	13 (27.08)	90 (24.0)
Cattles	18 (9.72)	13 (9.15)	04 (8.33)	35 (9.33)
Cat	15 (8.09)	14 (9.05)	08 (10.41)	37 (9.06)
Rat/others	10 (5.40)	03 (2.11)	07 (31.26)	21 (5.32)

P value= 0.04 (Significant differences)

Table 2: Distribution of study participants according to Knowledge regarding Mode of Transmission & symptoms of rabies:

Mode of Transmission	Law students (N=185)	Pharmacy students (N=142)	Mass Communication students (N=48)	Total (N=375)
Animal bite	180 (97.29)	135 (95.07)	40 (83.33)	355 (94.66)
Scratch by animal	28 (15.35)	25 (17.60)	12 (25.00)	65 (17.33)
Lick on broken skin	22 (11.89)	13 (9.15)	09 (18.75)	44 (11.73)

Cont... Table 2: Distribution of study participants according to Knowledge regarding Mode of Transmission & symptoms of rabies:

Touching secretions of rabid animal/person	47 (25.39)	32 (22.5)	20 (41.60)	99 (25.59)
Drinking unboiled milk of rabid animal	18 (09.72)	23 (16.19)	15 (31.39)	56 (14.93)
P value =0.05 (No Significant differences)				
Knowledge about Symptoms				
Hydrophobia	48 (25.94)	25 (17.60)	15 (31.25)	88 (27.46)
Convulsions	18 (09.72)	13 (09.15)	04 (08.33)	35 (09.33)

P value=0.92 (No Significant differences)

Table 3: Distribution of study participants according to the knowledge regarding wound management:

Wound management	Law students (N=185)	Pharmacy students (N=142)	Mass Communication students (N=48)	Total (N=375)
Wash with soap & water	48 (24.94)	14 (9.85)	08 (16.66)	70 (18.66)
Apply Chilly Powder	66(35.68)	80 (56.33)	30 (62.05)	176 (46.93)
Used herbal Paste	12 (6.48)	13 (9.15)	05 (10.41)	30 (8.0)
Apply oil etc	05 (2.70)	03 (2.11)	03 (6.25)	11 (2.93)

P value=0.00 (Highly significant association)

Table 4 : Distribution of study participants according to Knowledge regarding post exposure prophylaxis & health seeking behaviour

Knowledge about Number of doses of ARV	Legal Education (N=185)	Pharmacy (N=142)	Mass Communication (N=48)	Total (N=375)
05 Dose	20 (10.81)	35 (24.62)	13 (27.08)	113 (30.13)
14 Dose	115 (62.16)	80 (56.33)	25 (52.08)	175 (46.66)
01/2 /3 Doses	005 (2.70)	04 (2.80)	05 (10.41)	14 (3.73)
P value= 0.00 (Highly significant association)				
Knowledge about Site for Anti Rabies Vaccine administration				
Upper arm / Anterolateral thigh	05 (2.70)	18 (12.67)	13 (27.08)	36 (9.06)
Buttock/ abdomen	120 (64.86)	95 (66.89)	33 (66.66)	247 (57.68)

Cont... Table 4 : Distribution of study participants according to Knowledge regarding post exposure prophylaxis & health seeking behaviour

P value =0.00 (Highly significant association)				
Health seeking behaviour				
Private Practitioners	126 (68.10)	97 (68.30)	23 (47.9)	246 (65.6)
Government Health centers	32 (17.29)	18 (12.67)	12 (25.00)	62 (16.53)
Quacks/ Traditional healers	27 (14.57)	27 (18.20)	13 (27.07)	67 (17.86)

P value= 0.04 (Significant association)

In this study, 61% of the study subjects were males and 39% were females. Majority of the students (67%) were in the age group of 17 > years. Only about half of the subjects (55.2 %) knew that rabies was caused by a virus. There was significant difference in knowledge about causes of rabies.

(84.53 %) respondents thought that the reservoir of rabies was dog. Knowledge regarding other animal reservoir was monkey (24.0 %), cattle's (9.33%), cat (9.06%), and rest to rat and other animals (05.32%). There was significant difference in knowledge about reservoir of rabies.

(94.66%) students knew that rabies could be transmitted by animal bite. Besides animal bite students knew that rabies could also be transmitted by scratch by animals (17.33%), lick on broken skin or mucous membrane (11.73%), touching secretions of rabid person/animals (25.59%), and drinking unboiled milk of rabid animal (14.93%). There was not significant difference in knowledge about mode of transmission of rabies.

Symptoms of rabies were found hydrophobia (27.46 %) and convulsion (9.33%). There was not significant difference in knowledge about symptoms of rabies.

Application of chilly powder (46.93%) and herbal paste (08. %) was found management of wound. Only (18.66%) students knew that wash with soap and water was better management of wound after animal bite. There was highly significant association in knowledge about management of wound after dog bite.

Only (30.13%) knew of 05 doses of anti rabies vaccines (ARV) for prevention against rabies and

majority (46.6%) still opined that 14 injections (ARV) had to be taken. There was highly significant association in knowledge about doses of anti rabies vaccines (ARV) for prevention against rabies.

In our study, very few (9.06%) students knew that anti rabies vaccines (ARV) should be given over arm/ anterolateral part of thigh. (57.68%) students believed that anti rabies vaccines were given around the umbilicus or intra abdominal. There was highly significant association with knowledge about site for ARV doses.

In case of visit for health services after animal bite, private practitioners (65.6%) were first choice of students. (16.53%) students wanted to go to the government health centers, and (17.86%) prefer to quacks and others traditional healers. There was significant in knowledge association with health seeking behavior.

Discussion

In this study, 61% of the study subjects were males and 31% were females, maximum students were in age group 17-20 years (67%). Only about half of the subjects (55.2%) knew that rabies is caused by a virus. There was significant difference in knowledge about causes of rabies.

(94.66%) students knew that rabies could be transmitted by animal bite. Besides animal bite students knew that rabies could also be transmitted by scratch by animals (17.33%), lick on broken skin or mucous membrane (11.73%), touching secretions of rabid person/animals (25.59%), and drinking unboiled milk of rabid animal (14.93%). There is no significant difference in knowledge about mode of transmission of rabies. Similar results were reported in a survey of knowledge, attitudes, and practices of dog and cat owners in Ottawa.

Carleton stated that 95% of respondents were aware that they were likely to get rabies from a bite or 77% from a scratch of a rabid animal. [6]

In our study, only (18.66%) students knew that wash with soap and water was better management of wound after animal bite. There are many myths and false beliefs associated with wound management such as application of oils, herbs, and red chilies on the wounds inflicted by rabid animals. In this study, 46.93% students told that chilly powder should be applied after dog bite whereas 8% students told that herbal paste should be applied after dog bite. A study done by Sekhon AS et al (2002) also revealed many myths and false beliefs associated with wound management such as application of oils, herbs, and red chilies on the wounds inflicted by rabid animals. [7]

A study done by S. Sehgal, D. Bhattacharya et al. (1994) in Delhi on the victims of dog bite reported that by the incidence of mortality from dog bite could be prevented by proper wound toilet with soap and water and prophylactic tetanus toxoid injection. [8] A study conducted by Sekhon AS et al (2002) revealed that only 21.2% students practiced washing wound with soap and water. [7] Rabies expert suggested that a detergent or carbolic soap should be available to the patient for wound washing, although plain water could be used, in case of non-availability of a soap. If the wound was large or deep, it should be cleaned by a dresser or health staff using antiseptic cream or solution. It was important to remove the saliva. Simply washing the wound and application of antiseptic lotion could reduce the risk of rabies by about 50%.

In the present study, only 30.13% students had knowledge that number of ARV doses required were 5 whereas 46.66% students still thought that 14 doses of ARV were required for management of dog bite. It was comparable to the findings of report by CDS of Rabies: Introduction. [9] A study conducted by Sehgal S. et al. (1994) suggested that people had very basic knowledge about anti-rabies treatment getting 14 injection after dog bite, as per the old concept, but not aware of the disease which could occur if they do not manage dog bites properly. About 0.40 million people continue to receive the sheep brain vaccine despite the fact WHO has recommended for its discontinuation.

In our study, very few (9.06%) students knew that anti rabies vaccines (ARV) should be given over arm/

anterolateral part of thigh. (57.68%) students wrongly believed that anti rabies vaccines are given around the umbilicus or intra abdominal. It indicated the need of increase in awareness among students regarding management of rabies among university students. There was highly significant association with knowledge about site for ARV doses. The most widely used WHO Essen regime calls for a 1 ml dose intramuscular, administered in upper deltoid region or anterolateral area of thigh for children on day 0, 3, 7, 14 & 28 regularly. [10] Study conducted by Singh US [11], 79% of study subjects told 14 injections and 5.7% told that the site of administration of rabies vaccine was over abdomen. An another study conducted by Bhatia R et al. (1994) revealed that gluteus region is not recommended as it has high fat content that slow the absorption of the vaccine. [12] It implied that the private practitioners should be made aware about correct techniques of rabies vaccines administration.

In case of visit for health services after animal bite, private practitioners (65.6%) was first choice of students. (16.53%) students wanted to go to the government health centers, and (17.86%) preferred to quacks and others traditional healers. It might be due to poor availability of rabies vaccine at governmental health centers. A study conducted by Bhalla S et al. (2005) suggested that 56% of the general practitioners preferred to give the anti rabies vaccine in gluteus region. [13]

Conclusion

It was observed that knowledge on various aspects of the rabies was poor among college students. It was also observed that there are many myths and misconceptions associated with wound management. The modern treatment is available but not properly utilized by the students because they have poor knowledge about current anti-rabies treatment. Awareness is the most effective tool for the prevention of rabies. So, there is strong need to organize awareness activities about rabies prevention using educational session. It may include various interventional activities for health education, distribution of IEC materials and role play activities in colleges to promote prevention through appropriate health-care practices.

Acknowledgement: We are thankful to all students who participated in this study

Ethical Clearance: Permission from the institutional ethics committee of Subharti medical college, SVSU, Meerut was taken.

Source of Funding -Nil

Conflict of Interest- There are no conflict in interest.

References

1. World Health Organization (2005) WHO Expert Consultation on Rabies. 1st Report. WHO Technical Report Series, No. 931 Geneva, Switzerland.
2. Goa Health News: Survey on rabies deaths in Goa. The Navhind Times April 13, 2003 issue Page 3.
3. Park. K: Park's textbooks of Preventive and Social Medicine. 24th edition, Jabalpur: M/s Banarsidas Bhanot;2017 pages 291-294.
4. Familusi JB, Osunkoya BO, Moore DL, et al. A fatal human infection with Mokola virus. Am J Trop Med Hyg. 1972; 21: 959-63.
5. Briggs D, Hanlon CA. World Rabies Day: focusing attention on a neglected disease. Vet Rec. 2007; 161: 288-9. doi: 10.1136/vr.161.9.288.
6. Ottawa carleton .A Survey of Knowledge, Attitudes and Practices of dog and cat owners With respect to vaccinating their pets against rabies, Ontario July 2000, volume 28-01, 1 January 2002.
7. Sekhon AS, Singh A, Kour P, Gupta S. Misconceptions and Myths in the management of animal bite case. Indian Journal of Community Medicine. volume xxvii No. 1, Jan-March 2002, pages 9-11.
8. S. Sehgal, D. Bhattacharya, M. Bhardwaj and V. Parsi Studies on victims of bite by a dog in Delhi Indian Journal of Public Health. 1994 vol xxxviii No. 1 January-March, pages 18-21.
9. CDC. Rabies: introduction page 1-3 by US Department of Health and Human Services.
10. Dreesen D, vaccine 1997, Vol 15 Supp Pg S3
11. Singh US, Choudhary SK. Knowledge, attitude, behaviour and practice study on dog bites and its management in the context of prevention of rabies in a rural community of Gujarat. Indian J Community Med. 2005 Jul-Sep; 30(3):81-3
12. Bhatia R, Ichhpujani RL. "Rabies- The killer disease" 1994 Ed . pg 109-110
13. Bhalla S, Mehta JP, Singh A. Knowledge and practice among GPs of Jamananagar city regarding animal bite. Indian J. Community Med. 2005, 30:94-6