

Original Article**An assessment of knowledge of prevention and management of Rabies in interns and final year students of Shri M. P. Shah Government Medical College, Jamnagar, Gujarat**

Sarkar Amrita*, Bhavsar Sudip*, Bundela Chintan*, Gohel Aniruddha*, Makwana Naresh**, Parmar Dipesh***

*Resident, **Professor, ***Professor & Head

Department of Community Medicine, Shri M P Shah Government Medical College, Jamnagar, Gujarat, India

ABSTRACT

Background: Rabies is one of the most important zoonotic diseases in India. Dogs are the main reservoir of rabies in India. In Southeast Asia, untreated, improperly treated or neglected cases lead to thousands of death yearly. Rabies can be completely prevented through proper management, but once contracted its almost always fatal.

Objectives: To assess the knowledge regarding preventive measures, post-exposure prophylaxis, wound management and use of RIG among the interns and final year medical students of Shri M.P. Shah Government Medical College, Jamnagar, Gujarat.

Materials and Methods: It is a cross-sectional study conducted in July, 2013. Data was collected using pre-tested questionnaire from 100 interns and final year students of Shri M.P. Shah Government Medical College, Jamnagar, Gujarat.

Results: It was seen that only 59% knew that vaccination of dogs was an essential preventive measure, 80% and 68% agreed that pre-exposure vaccination and educating the people regarding pre- and post-exposure prophylaxis were useful, respectively. Also 89% and 59% were aware that wound should be washed immediately and antiseptics should be applied, respectively. 50% and 29% were not aware of the schedule and dose of the PEP, respectively. Only 35% knew about both IM and ID route of administration of PEP. Only 66% were aware that the site of administration of PEP is deltoid.

Conclusion: The study showed that there was no proper knowledge about the prevention and management of rabies in the study population which needs to be overcome immediately with proper training.

Keywords: Rabies, post exposure prophylaxis, PEP, zoonotic disease, fatal

INTRODUCTION

Rabies, a fatal zoonotic infection of humans and other mammals affecting the central nervous system, is caused by a virus of the Lyssavirus genus of the Rhabdoviridae family. Though, human rabies has been eradicated in some developed countries, it continues to be endemic in India, except Union Territory of Lakshadweep and, Andaman and Nicobar islands.

According to 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, 20 565 deaths occur from rabies per year [1]. However, since, rabies is not a notifiable disease in India, there is no organized system of surveillance of rabies cases, and hence the actual number of

cases is actually much higher than this [2]. In India, about 96% cases are due to dog bites, 1.7% due to cat bites, and 2.1% due to other animals like jackal, monkey, cow, goat, rat, pig, mongoose etc [1].

It has been found that Post-exposure prophylaxis (PEP) can prevent the disease if administered within six days of infection. Animal experiments have shown that local wound treatment can reduce rabies incidence by up to 80% [3]. So, it becomes imperative that health care professionals have adequate knowledge regarding the cause of rabies and the preventive measures to avoid the disease.

General practitioners (GPs) are most commonly the first line management providers in animal bite cases. As GPs are doctors who start practice after completing internship following MBBS, this study was done in final year students and interns in a

medical college in Jamnagar, Gujarat to assess the knowledge of rabies and its management.

MATERIAL AND METHODS

A cross-sectional study was conducted in July, 2013 among 50 interns and 50 final year students of Shri M.P. Shah Government Medical College, Jamnagar, Gujarat. Data was collected using pre-tested anonymous questionnaire. Proper verbal consent was taken before filling out the questionnaire. The participant had the right to withdraw at any stage of data collection. Data was entered, stored and analyzed with the help of Microsoft Excel, 2007.

RESULTS

Our study revealed that 95% was aware of the viral cause of rabies and that it was preventable, 83% knew about the signs and symptoms correctly; however 46% thought the disease is curable. It was seen that 98% of the participants identified dog as the major reservoir of the infection but only 54% knew about other animals like bats, jackals, pigs, mongoose, cats etc. as reservoirs [Table 1].

Table 1: Distribution of interns and students according to their knowledge about rabies

	Percent
I. Causative Agent	
Virus	95
Others	0
Don't know	5
II. Reservoir of infection	
Only dog	44
Dogs and other animals	54
Don't know	2
III. Modes of transmission (multiple answers)	
Bites, licks, scratches of the infected animal	98
Inhalation	8
IV. Incubation Period	
Correctly knows	92
Doesn't know	8

98% identified that the modes of transmission are bites, licks, scratches of the infected animal and 8% thought infection can spread by inhalation. 92% of the participants correctly answered about the incubation period [Table 1].

Table 2: Knowledge regarding preventive measures (multiple answers) (in %)

Domain	Yes	No	Don't know	Guidelines
Vaccination of dogs	59	33	8	Yes
Elimination of suspected animals	91	9	0	Yes
Pre exposure vaccination is helpful	80	20	0	Yes
Educating people about the pre and post exposure	68	32	0	Yes

Table 3: Distribution of participants according to their knowledge on wound care management

Answers	Students		Interns		P value	
	N	%	N	%		
Immediate wash	Yes	46	92	43	86	0.522
	No/ Don't Know	4	8	7	14	
Antiseptic application	Yes	30	60	29	58	1
	No/ Don't Know	20	40	21	42	
Sutures	No	40	80	33	66	0.976
	Yes/ Don't Know	10	20	17	34	
Cauterization	No	36	72	36	72	0.823
	Yes/Don't Know	14	28	14	28	

In Table 2 we can see that 33%, 32% and 9% were not aware that vaccination of dogs, educating people about the pre and post exposure preventive measures and elimination of suspected animals could prevent rabies, respectively. 80% knew that Pre-exposure vaccination is recommended in high risk population.

Table 3 shows that 89% (92% students and 86% interns), 59% (60% students and 58% interns), 73% (80% students and 66% interns) and 72% (72% students and 72% interns) of the participants correctly responded about wound management, antiseptic use, suturing and cauterization respectively.

Table 4 shows that 67% and 19% could correctly classify Cat I and Cat II. "Contamination of mucous membranes with saliva", "Single transdermal bites

Table 4 : Knowledge regarding categorization of the wound (multiple answers)

Wound type	Cat I (%)	Cat II (%)	Cat III (%)	Do not know (%)	Guidelines
Touching or feeding animals, Licks on intact skin	67	1	0	32	Cat I
Nibbling of uncovered skin, minor scratches or abrasions without bleeding	41	19	8	32	Cat II
Contamination of mucous membranes with saliva	15	43	3	39	Cat III
Single transdermal bites or scratches, Licks on broken skin	4	23	36	37	Cat III
Multiple transdermal bites or scratches	0	8	57	35	Cat III

Table 5: Distribution of participants according to knowledge regarding site and route of vaccination

Answers	Total (N=100)	Answer according to Guidelines
Knowledge regarding site of vaccination		
IM	39	IM/ID
ID	10	
IM/ID	35	
Others/Do not know	16	
Knowledge regarding route of IM vaccination		
Deltoid	66	Deltoid
Abdomen	34	
Gluteus	9	
Thigh	19	
Others	34	
Do not know	8	

*IM= intra-muscular, ** ID= intra-dermal

or scratches and licks on broken skin” and “Multiple transdermal bites or scratches” were categorized as Cat III by 3%, 36% and 57% respectively.

Table 6: Knowledge regarding Post-exposure prophylaxis (in %)

Category	DK	No Rx	WM	V	RIG	WM+V	WM+RIG	V+RIG	WM+V+RIG	Others	Guidelines
Cat I	14	11	42	6	0	17	2	0	0	8	Nothing, if reliable history
Cat II	14	0	3	46	9	5	5	11	0	7	WM+V
Cat III	19	3	0	3	28	0	0	31	11	5	WM+V+RIG

* DK = Don't know, **WM = wound management, ¶ V= vaccination, § RIG= rabies immunoglobulin

Table 5 shows that 66 % knew correctly about the recommended site for IM (intramuscular) route according to the WHO guidelines which is deltoid. And also that 35% correctly knew about the route of administration of vaccination which is either IM or ID (intra-dermal).

Table 6 shows that only 11%, 5% and 11% had correct knowledge regarding PEP for Cat I, II and III respectively.

DISCUSSION

In our study, there were 100 participants comprising of interns and final year students. Out of this, 95% knew that rabies was preventable, 83% knew about the signs and symptoms correctly, however 46% thought the disease is curable whereas in reality, once contracted the disease is invariably fatal [4].

95% was aware of the viral cause of the disease which was similar to a study done by Nayak RK et al. (2011) in Belgaum [5]. 98% of the participants were aware that dog was the major reservoir of the infection which was similar to a study by Jasleen, Padda AS et al. in Amritsar Medical College (98.3%) [6].

54% knew about other animals like bats, jackals, pigs, mongoose, cats etc. as reservoirs that was better than the study in Amritsar Medical College where only 11% of the MBBS doctors knew about other reservoirs [6].

98% identified that the modes of transmission are bites, licks, scratches of the infected animal. 8%

thought infection can spread by inhalation, which is possible though rare [4]. The incubation period was correctly identified by 92% of the participants as against 51.7% of doctors in a study done in Karachi (2007) by Shah SF et al [8].

In our study, 33% and 32% were not aware that vaccination of dogs and educating people about the pre and post exposure preventive measures could prevent rabies. However, 91% were aware that elimination of suspected animals was a useful intervention. 80% knew that Pre-exposure vaccination is recommended in high risk population [9, 10, 11].

89% (92% final year students and 86% interns) of the participants' response regarding wound management, 59% (60% final year students and 58% interns) regarding antiseptic use, 73% (80% final year students and 66% interns) regarding suturing, and 72% (72% final year students and 72% interns) regarding cauterization were according to the guidelines. A study done in interns by Chowdhury R. et al. (2012) found 96.2% of the participants' response regarding wound management, 77.5% regarding antiseptic use, 83.8% regarding suturing, and 75% regarding cauterization were in accordance to the guidelines [12]. Also, it was found that the knowledge of interns regarding the same was not significantly better than the final year students.

Of the total participants, 67% could correctly classify "touching or feeding animals, licks on intact skin" as Cat I, whereas only 19% could classify "Nibbling of uncovered skin, minor scratches or abrasions without bleeding" as Cat II. "Contamination of mucous membranes with saliva", "Single transdermal bites or scratches and Licks on broken skin" and "Multiple transdermal bites or scratches" were categorized as Cat III by 3%, 36% and 57% respectively. The knowledge regarding categorization of the wound was overall poor in our study. In the study by Chowdhury R et al., 75%, 43.8%, 27.5% correctly classified Contamination of mucous membranes with saliva, Single transdermal bites or scratches and Licks on broken skin as Cat III [12].

Our study shows that only 35% knew that route of administration of vaccination could be either Intra-muscular (IM) or Intra-dermal (ID) which was still higher than found in the study by Chowdhury R. et al. (10%) [12].

In this study, it was found that 66% of the participants correctly knew the current recommended site of vaccination. In the study by

Chowdhury R. et al. 73.8% of interns knew the site of vaccination correctly [12].

The study reveals that only 11% had correct knowledge regarding PEP for Cat I which was similar to findings of Chowdhury R. et al. (10%) [12]. Only 5% and 11% of the participants had knowledge regarding PEP for Cat II and Cat III in accordance to the WHO recommended guidelines. This was poor as compared to 57.5% and 85% correct responses in the study by Chowdhury R. et al. [12].

CONCLUSION

This study highlighted that knowledge regarding a disease as fatal and endemic disease as rabies is inadequate in interns and final year students of the tertiary care hospital where the study was undertaken. Also, it revealed that the overall knowledge of the interns regarding prevention and management was not better than that of the final year students. This implies interns are lacking in practical exposure.

Animal bites cases are frequently at all government or private hospitals in India and this lack of knowledge among health care professionals leads to loss of several lives which could have been saved. This, most likely happens, either because the first line treatment providers are just out of medical college with no practical exposure or due to inadequate knowledge which is not in accordance with the current guidelines. So, keeping this in mind, teaching hospitals should arrange for interactive animal bite clinic visits for students and posting for interns, CMEs to address specific knowledge gaps. These would give them a practical exposure, reduce the public health burden of rabies and also reduce the health care budget on vaccines and immunoglobulin wastage resulting from improper use.

ACKNOWLEDGEMENT

The authors would like to acknowledge Dr. Pradeep Pithadia and Dr. Harsh Shah for their help and support. We are also grateful to the students and interns who took part in the study for their co-operation.

REFERENCES

1. Sudarshan M K. Assessing Burden of Rabies in India: WHO Sponsored National Multicentric Rabies Survey, 2003. *Indian J Community Med* 2005;30:100-1
2. Menezes R. Rabies in India. *CMAJ*. 2008 February 26; 178(5): 564–6.

3. WHO. Current WHO GUIDE for Rabies Pre and Post-exposure Prophylaxis in Humans. Geneva: WHO 2007.
4. Rabies, Parks Textbook of preventive and social medicine, 251-256,2013
5. Nayak RK et al. Knowledge, Attitudes and Practices regarding Rabies among general practitioners of Belgaum City Al Ameen J Med Sci 2013; 6 (3): 237 – 242.
6. Jasleen, Padda AS et al A study of the assessment of training needs of the doctors, working in various Health facilities in Amritsar Distt. Regarding the management of animal bite cases. From souvenir APRICON 2001-3rd National Conf. on Rabies (68-69).
7. Bhalla S, Mehta J P, Singh A. Knowledge and Practice among General Practitioners of Jamnagar city regarding Animal Bite. Indian J Community Med 2005; 30:94-6.
8. Shah SF, Jawed M, Nooruddin S, Afzal S, Sajid F, Majeed S, et al. Knowledge and practices among the general practitioners of Karachi regarding dog bite management. J Pak Med Assoc 2009;59:861-4.
9. CDC. About Rabies. (Online) 2007 (Cited 2008 Dec 25). Available from URL: <http://www.cdc.gov/rabies/about.html>.
10. Bourhy H, Dautry-Varsat A, Hotez PJ, Salomon J (2010) Rabies, Still Neglected after 125 Years of Vaccination. PLoS Negl Trop Dis 4(11): e839.
11. Blueprint for Rabies Prevention and Control (2010) Official Web site. Available: <http://www.rabiesblueprint.com/>. Accessed 2 November 2010.
12. 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

Corresponding Author:

Dr Sarkar Amrita
Resident
Department of Community Medicine
Shri M P Shah Govt. Medical College
Jamnagar, Gujarat, India
E-mail: 2amritasarkar@gmail.com

Date of Submission: 21/09/13
Date of Acceptance: 14/10/13

How to cite this article: Sarkar A, Bhavsar S, Bundela C, Gohel A, Makwana N, Parmar D. An assessment of knowledge of prevention and management of Rabies in interns and final year students of Shri M. P. Shah Government Medical College, Jamnagar, Gujarat. J Res Med Den Sci 2013;1(2):62-66

Source of Support: None
Conflict of Interest: None Declared